No. 401-383

Vol. 6. pt. 1
1908

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THE YEAR'S RECORDS.

1d

THE MOTOR CYCLE

No. 249. Vol. 6. WEDNESDAY, JANUARY 1st, 1908.

REGISTERED AS A NEWSPAPER FOR TRANSMISSION IN THE UNITED KINGDOM

Price 1d. Published Weekly.

Mr. Lee 1698.

*4012.383
6-1

JAN 14 1908 B.P.L.

To be Cleared

IMMEDIATELY

Direct or through Rex Agents.

A few 1907 3½ h.p. Magneto Models.

Latest Finish. 2¼in. Tyres.

CASH OR EXCHANGE.

The Rex Motor Mfg. Co., Ltd.,
COVENTRY.

Riley

TRICARS and CARS.

300 MOTOR WRINKLES.

By LIEUT. WINDHAM, R.N.

The result of years of practical experience of all leading types of English and foreign motors.

Extremely helpful to Motor Cyclists.

PRICE, 1/- Net. Post free, 1/2.

ILIFFE & SONS Ltd., 20, Tudor St., London, E.C.

SIDESLIP.

We guarantee our new pattern

"MONTGOMERY" Sidecar

fitted with patent compensating joints, to be free from side-slip under all conditions. Our device can be applied to existing "Montgomery" Sidecars at a cost of 12/6. Money refunded if not satisfactory.

W. MONTGOMERY & CO., Manufacturers & Patentees, Bury St Edmund's

London Agents: Service Co., Ltd., 292, High Holborn, W.C.

NEW CLINCHER TYRE.

1740/2

For Driving Wheels of High-Powered Motor Cycles.

Moulded on car tyre lines and made of extra thickness. Will fit the ordinary 24 and 26in. x 2 and 2¼in. rims, and measure when inflated 25 and 27in. x 2⅛in. respectively.

NORTH BRITISH RUBBER Co., Ltd., Castle Mills, EDINBURGH.

The Autocar

ESTABLISHED 1897.

An indispensable companion to all interested in the use of motor cars for pleasure purposes. Fully illustrated with original photographs and drawings

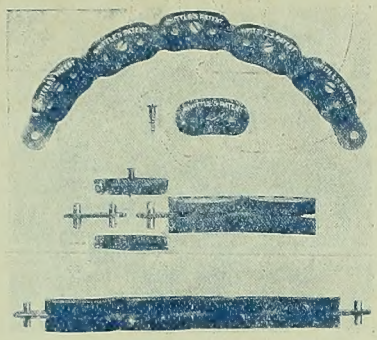
THREEPENCE. EVERY FRIDAY. Of all bookstalls.

VARIABLE GEARS.

WHITTLES' (PATENT) LINK-GRIP

Non-slip Endless Leather Belts for MOTOR CYCLES, Etc.

No fastening link required. Shortening simple and easy. Great strength.



Less power required. Not affected by wet. Will drive when slack.

Trebles the life of the Pulleys.

Scores of our Belts have run from 10,000 to 17,000 miles, and are still in use. References given.

Send for new Booklet with full directions.

Thos. Whittle & Sons, Ltd.,

Rose and Crown St., WARRINGTON.

Telephone—365Y. Telegrams—"Belt," Warrington.

G. L. Carburetter

SPECIAL FEATURES:

1. THE WELL-KNOWN G.-L. SYSTEM OF CONTROL.
2. PATENTED ADJUSTABLE FLOAT.—(*a*) No more tinkering with the needle; adjusts petrol level by the mere turn of a thread. (*b*) Greatly increased sensitiveness owing to the patented shape.
3. NOVEL PATENTED THROTTLE.—Usual throttle lever gives: (*a*) Start without tickling. (*b*) Very fine graduation of opening. (*c*) Perfect Vaporisation. (*d*) Downhill running on fresh air only.
4. EXTREMELY ACCESSIBLE JET. Removed by unlocking one milled nut only.

No Moving Parts whatever, except throttle.

Greatest Possible Economy!

Extreme Flexibility!

CARBURATION, LTD.,

Byron House, 85, Fleet Street, LONDON, E.C.

A Motor Cyclist in difficulty

with any part of his machine has only to refer to this book to obtain the necessary information as to how to rectify the matter.

ELEVENTH EDITION NOW READY.

MOTOR CYCLES & how to manage them.

1/- NET

ENTIRELY REVISED AND REWRITTEN BY THE STAFF OF "THE MOTOR CYCLE."

ESPECIALLY USEFUL TO BEGINNERS, as evidenced by—

Hillcrest, Mansel Road, Small Heath, Birmingham, July 11th, 1907.

Dear Sir,—Thanks for the Handbook, "Motor Cycles and How to Manage Them." **It is a splendid little book, and just what I, as a beginner, required."**

Yours truly, WM. MITTAM.

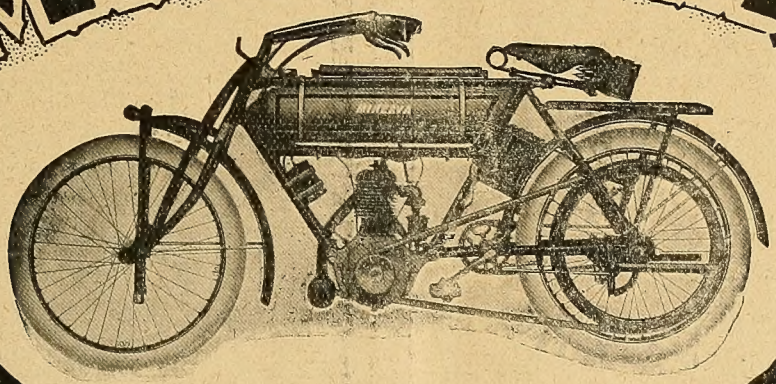
PRICE 1/- NET. **Post free 1/2.**

ILIFFE & SONS LTD., 20, Tudor Street, LONDON, E.C.

Simplicity

is a strong feature of the

MINERVA



Extract of Letter from Mr. J. Kirton, 22, Booth Street, Millfield, Sunderland, under date May 28th, 1908:

"The machine arrived in good order, and my client is very pleased with it. I went out with him to teach him to ride it; *he started it himself,* and we had a ride of about 10 miles. He has never been on a motor before, and was delighted with the ease and comfort he found in riding it, and he states if he had known he would have had one long since, and says that any novice could ride it, because it is so easy to learn. I myself think that this speaks volumes for your machines."

Prices from £29

All about "Minerva Motor Cycles" sent free on application.

MINERVA MOTORS,

Ltd.,

40, HOLBORN VIADUCT,

London, E.C.

Minerva Goods & Repairs, Ltd., 15-17, Charlotte Street, W.

AGENTS.

ACCRINGTON—Athletic Supply Association.
BIRMINGHAM—Heath's Garage, Ltd., 49, John Bright Street.
BRIGHTON—W. Cowderoy, 7, Gloucester Road.
BRISTOL—The Olympia Motor and Engineering Works, St. James' Square.
BOLTON—J. H. Green, 186, Derby Street.
BURNLEY—J. Hebden, Waterloo Road.
DONCASTER—W. E. Clarke and Co., Station Road.
FARRINGDON (BERKS.)—T. W. Anns, The Garage, Market Place.
HALIFAX—Harry Maude, 2, Lilly Lane.
HULL—E. S. Annison, 33-34, Witham Street.
KIRKBY LONSDALE — G. Duguid.
LIVERPOOL — Gormlys, Ltd., Berry Street.
MANCHESTER — Cookson and Bros., 511, Chester Road, Old Trafford.

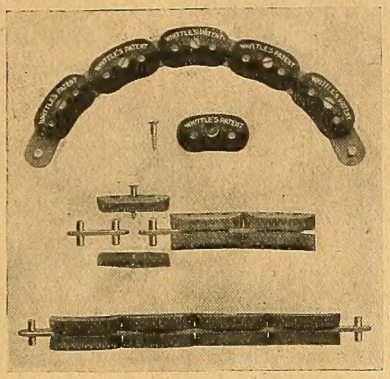
AGENTS.

MIDDLESBROUGH — Upton's Stores, 6, Newport Crescent.
NOTTINGHAM—E. G. Young & Co., Bentinck Motor Works, Trent Bridge.
NEWCASTLE-ON-TYNE—Eldon Electric Co., 61, High Bridge.
PETERBOROUGH — Heightons Depots, Ltd., 51, Westgate.
SOUTHWELL—J. Mather & Co., King Street.
STOCKPORT (near)—J. Garlick Looker & Co., Portland Grove, Heaton Chapel.
WORCESTER—Barker's Garage, Lowesmoor Place.
CARDIFF—Robert Bevan, 31, Castle Street.
GLASGOW—Jas. Gibbon & Sons, 98, West Nile Street.
BELFAST—J. B. Ferguson, Ltd., Little Donegall Street.
DUBLIN—H. S. Huet, 5, South Anne Street.
CWMTILLERY—Hellier & Besse Tillery Cycle Works.

WHITTLES'
(PATENT)
LINK-GRIP

Non-slip Endless Leather Belts for MOTOR CYCLES, FANS, Etc.

No fastening link required. Shortening simple and easy. Great strength.



Less power required. Not affected by wet. Will drive when slack.

Trebles the life of the Pulleys.

WHAT MANY OF OUR CUSTOMERS SAY:

"Have had belt in use for over three years."

"Done upwards of 20,000 miles."

"The only belt for heavy passenger work."

"Five times cheaper than any other."

"The poor man's belt.

"No sign of slip."

"The 'no trouble' belt."

"Have not taken belt off pulleys for two years"

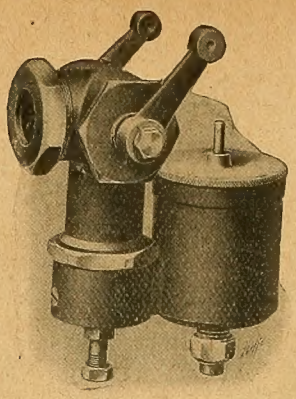
"The best belt on the market."

Send for new Booklet with full directions and copies of recent testimonials.

Thos. Whittle & Sons, Ltd.,

Rose and Crown St., WARRINGTON.

Telephone 365Y. Telegrams—"Belt," Warrington.



A New Carburetter.

Some of its Special Features:

Efficiency, Lightness, Strength and Durability.

Float Chamber and Spray Chamber are made of Castings. The Fitting of the adapter has been very much improved. It is now held firmly in position by means of a Coil Spring. To clean the Jet it is only necessary to undo one Nut, the Joint being rendered Petrol tight by means of a Fibre Washer. The construction of the Throttle and extra Air Inlet is very strong, and it is impossible for any play to take place in either. This type of Carburetter has been introduced for those who require a stronger type of Carburetter than that previously sold by us, but the smaller lightweight pattern will still continue to be manufactured, its efficiency having been well proved on Engines up to 3½-4 h.p.

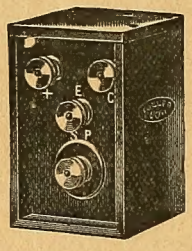
MODELS CAN BE SEEN IN

LONDON: F. W. Carpenter, 13, Cecil Court, Charing Cross Road.

GLASGOW: E. Trevor, 90, Mitchell Street.

BROWN & BARLOW Ltd.,

17, Loveday St., BIRMINGHAM.



The Fuller 'Half-guinea' Plain Coil.

3in. x 3in. x 4in.
Price 10/6
Twin do. .. 21/-

Stocked by GAMAGE, BENETFINK, &c.

4 volts Minerva, 18 amps., 17/- 2in. x 4in. x 6in. high.
Rex, 16 amps. .. .. 16/- 2⅜in. x 3⅜in. x 5½in. high.
Midget, 16 amps. .. 16/- 3in. x 3in. x 4½in. high.

In buying Coil or . . Accumulator, go . . FIRST for QUALITY.

A small saving in first cost is no compensation for roadside worries.

FULLER Accumulators and Coils

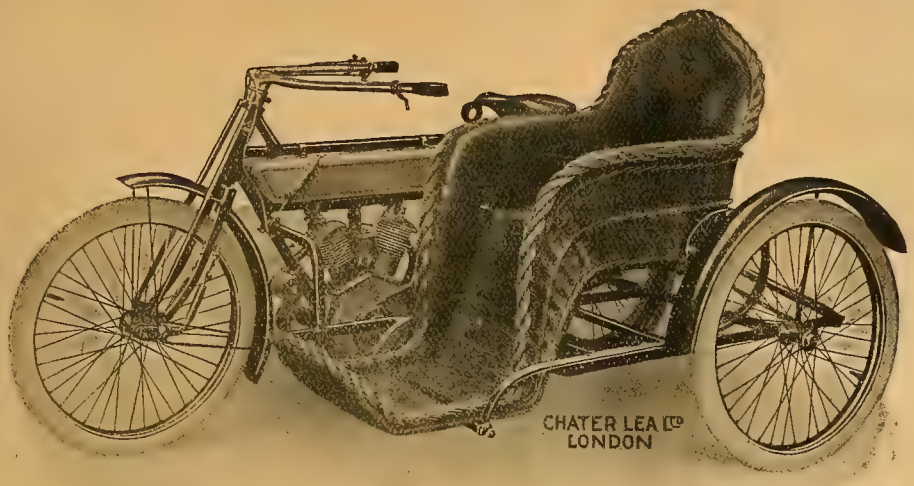
are everywhere recognised as PRE-EMINENT FOR QUALITY.

John C. Fuller & Son,

Woodland Works, Bow, London, E.

Manufacturers of the Highest Grade Ignition Apparatus.

COMMON SENSE & SIDECARS.



Does the addition of a sidecar and the weight of a passenger entail any added strain?

IT DOE

Which construction meets it best—a rigidly built and efficiently braced sidecar, or "the other sort"?

THE RIGID TYPE.

OUR SIDECAR
does not skid;
Stands alone;

Is easily driven by anyone, with passenger or without. Can be fitted to any machine, and cannot possibly injure a properly constructed frame.

N.B.—"Inventors" claims of 'no strain,' etc., constitute a Strain on Public Credulity.

CHATER LEA
FITTINGS for MOTOR CYCLES.

Every type, including the latest (No. 7) for large engines, variable gear and Sidecar.

Handbook post free. New trade list now ready.

Works: GOLDEN LANE, LONDON, E.C.

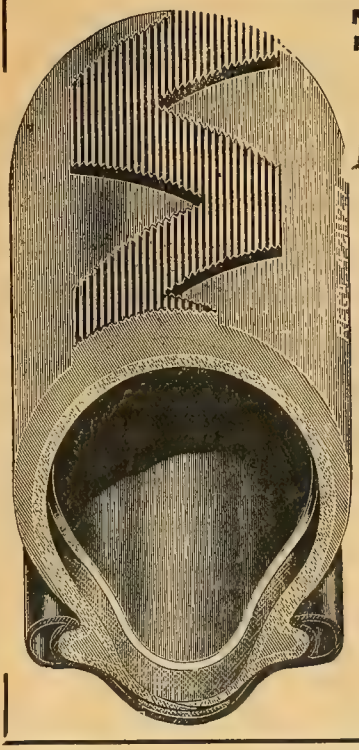
Sole Manufacturers—

GROSE LIMITED,

NORTHAMPTON.

Telegram—Case. Telephone—111.

THE "HERMETIC"



NON-SKIDDING RUBBER TREAD TYRES.

Excel all others for

Strength,
Reliability,
and
Durability.

Best manufacture throughout.

Satisfaction guaranteed.

Sold by all Agents.

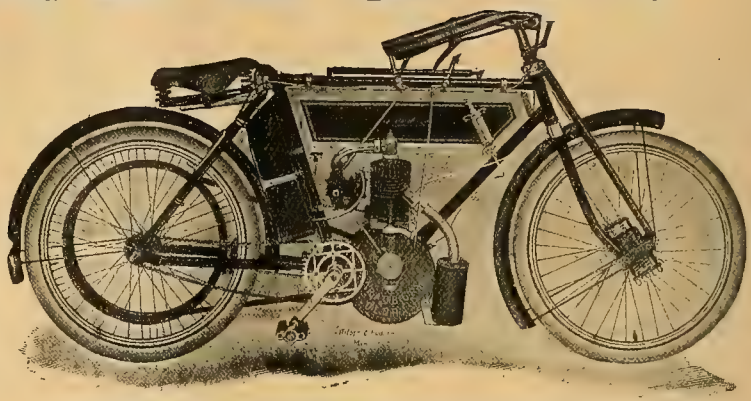
MAKERS—
The Self-Sealing Rubber Co., Limited,
Ryland Street, BIRMINGHAM

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

BRADBURY

We claim the following advantages over motors of any other type.

Powerful Vertical Engine. Strongest Pattern Frame with all Straight Tubing. Engine Case forms basis of Frame. Perfect and Permanent Alignment. Long Bearings of Phosphor Bronze. Mechanism easily accessible. It runs smoothly and quietly, and every Engine gives its advertised power. Less Vibration than any other Motor of same power. The Best Hill Climber. Perfect Balance.



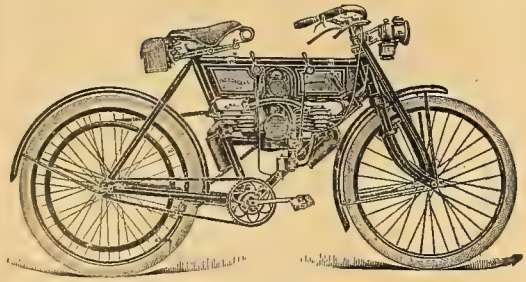
AWARDED 17 GOLD MEDALS IN RELIABILITY TRIALS.

2¼ h.p., £25; 3 h.p., £32; 3½ h.p., with spring fork attachment, £40.
4½ h.p. Motor Fore Car, open frame, water cooled, two speeds, free engine £85.

PRICE LIST AND NAME OF NEAREST AGENT ON APPLICATION TO DEPARTMENT M.

Bradbury & Co., Ltd., WELLINGTON WORKS, Oldham.

30 Guineas.



2¼ h.p. twin-cylinder.
Bosch H.T. Magneto.

THE

"DOUGLAS"

Is doing more to make motor cycling popular than anything else, because it is noiseless, vibrationless, takes hills as level ground, and gives no trouble on the road.

Send for booklet to the makers—

DOUGLAS BROS., Kingswood, Bristol.

TO MOTOR CYCLISTS.
INSURE AGAINST
PUNCTURES and BURSTS
IN ALL YOUR TYRES
by using

'BERVIN' TUBES

(PATENT).
THE SIMPLEST EXPEDIENT ON A JOURNEY.
ILLUSTRATED PROSPECTUS GRATIS.
Apply, **THE DEPOT, THE SPARK MOTOR WORKS, 170, Pentonville Road, King's Cross, London.**
(Telephone 5010 Central.)

MOTOR CYCLISTS
who are also
PHOTOGRAPHERS
will be interested in

Photography and FOCUS

1D

The favourite Journal for all Camera users.
EVERY TUESDAY. ONE PENNY.
Of all Newsagents and Booksellers.

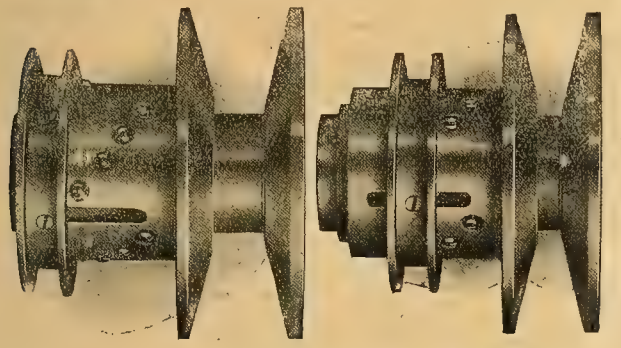
In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

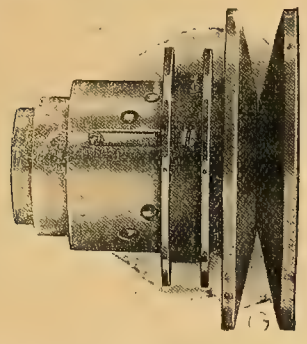
"DO YOU FIND MOTOR CYCLING A REAL PLEASURE?"

(By R. S. Osborne.)

While there are many riders who find motoring all that they could wish for, there are at the same time a great number of users who get very little real pleasure out of their machines. There are various causes to attribute this to. But perhaps none so great as the starting difficulty, coupled with the difficulty to go through traffic without having to be constantly pedalling or dismounting.

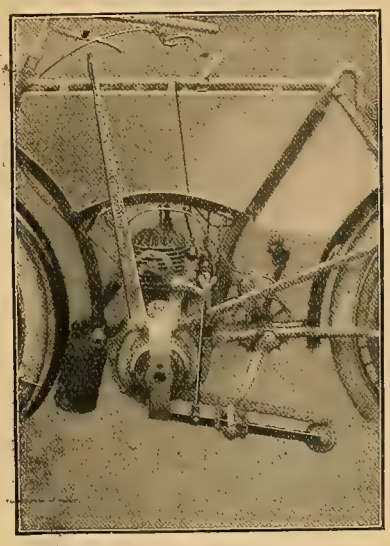
There are many riders who cannot start their machines without having to pedal exceedingly hard or be pushed along. If they stop on an incline it is an utter impossibility for them to make a fresh start without assistance. Let the reader answer the question himself. Is there any real pleasure in this? Even if assistance is at hand and the machine is once more got going, there might be a flock of sheep come along and so cause another stop where no assistance was available.





Consider the rider who is not afraid of jumping on after the machine is got going. Watch him with his new machine, perhaps a powerful twin. He will give the heart-breaking shove, drop the valve, and before he knows where he is the machine is out of his hands. This is what he calls pleasure. Do you?

Follow the same man in traffic; see the extreme difficulty that he has in keeping the pace of his machine down. You see he is one of the enthusiastic riders who do not want their machines geared at six to one all the time. They have a little consideration for their engine on the level. See the machine when it comes to a hill; perhaps he will dismount to adjust his adjustable pulley or pedal exceedingly hard to keep the machine going. Is there any pleasure in this? Motor cycling is a pleasure if your machine is properly equipped. We will suppose that you have got a standard machine—say, a Triumph, Brown, Minerva, Rex, etc. The machine itself may be all right, but to really enjoy riding it is necessary to have it equipped with a free engine and variable gear. Fitted with a good gear it is easy to make a standing start just like a car. You start the engine with a handle or just walk the machine along and then pull the free engine in and mount at ease. With a low gear it is quite easy to start the engine up without vigorous pushing.



We will suppose that your machine is equipped with the Osborne Patent Four-speed Pulley, which is the very best gear that you could fit to your machine. You would get the engine started as described above, sit on the saddle and press the lever forward; your machine would at once glide forward. It would not matter whether it was a hill or not. You are then on the low gear of seven or eight to one. To raise the gear you press the lever forward, when you will feel the pulley lock itself in any one of the four speeds entirely free from any end thrust or friction. If you come to traffic, all you have to do is to go on the bottom speed with your machine going quite slowly. If there is a dead stop, pull the lever back into the free engine position, close the throttle so as to slow the engine down, and wait until there is a chance to move again. When you open the throttle and press the lever forward your machine would at once glide on. Reader, is this not a real pleasure? Do you not think that you would enjoy riding more with one fitted on. It would make starting, traffic riding, and hill-climbing easy.

You can have one fitted to your machine for £5 if purchased direct from the makers. I am giving an illustration of the pulley in three positions, and also of one fitted to a motor cycle. The firm also make a three-speed pulley with free engine at a price of £3 15s. They have just issued a beautiful, interesting, forty-eight page art catalogue describing the various models of free pulleys, etc. I should advise all readers to write at once for a copy while it is in print.

OSBORNE BROS., PRINCESS WORKS, LINCOLN.

In answering this advertisement it is desirable that you mention "The Motor Cycle."

The BROWN MOTOR BICYCLE

In the M.C.C. Hill Climb at Sharpenhoe on Saturday, May 2nd, the "BROWN" Motor Bicycle did FASTEST TIME in the Single Cylinder Class, WON the Single Cylinder Handicap, and did FASTEST TIME OF THE DAY with the exception of one TWIN Cylinder. The "BROWN," however, beat thirteen Twin Cylinder Machines.

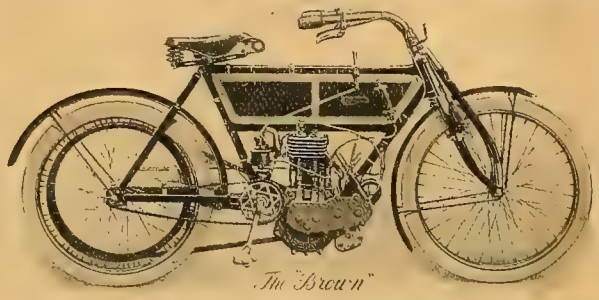
In the Essex M.C.C. Open Hill Climb at High Beech, on Saturday, 16th May, the "BROWN" Motor Bicycle secured THREE FIRSTS and TWO SECONDS OUT OF FIVE EVENTS.

In the Auto-Cycle Union's Open Hill Climb at Sutton Bank (York), on Saturday, May 30th, the "BROWN" Motor Bicycle secured a FIRST and SECOND OUT OF TWO EVENTS.

"The 'BROWN' machine is powerful and has proved perfectly reliable on every occasion. There have been four or five motor bicycles in my district, but these all had a trick of breaking down hopelessly every spin over ten miles. Mine on the contrary spins along at an astonishing pace and is admired by all who see it. Allow me then to congratulate you on turning out such a fine reliable machine. The magneto is simply perfect, it has in the 1,000 never caused a stop at all."

Mr. J. Downing, Deputy Magistrate, Bengal, India, 29/2/08.

Could there be stronger evidence of the sure merit of "BROWN" Motor Bicycles than the above. Extraordinary success in Open Competitions, often beating machines of double its own h.p., and the letters we are continually receiving from delighted riders, of which the above is one. Don't you think it would be to your interest to have all particulars of the "BROWN" before deciding on your choice of a machine? We do! Write us now for "the Book of the 'Brown.'"



3½ h.p., £37. 5½ h.p. (twin), £50.

BROWN BROTHERS,
LIMITED.

West End Showrooms:
15, NEWMAN STREET, OXFORD ST., W.

Wholesale only:
GREAT EASTERN ST., LONDON, E.C.

269-273, Deansgate, Manchester; and Paris.

Note the Difference
in the amount of light obtained from

THE Autoclipse MOTOR LAMPS

(shown above) and that obtained from the ordinary motor cycle lamp (see below).

"AUTOCLIPSE" Motor Cycle Lamps project two distinct sets of rays, the diffused or short distance rays, which give a good light for immediate surroundings, and the long distance rays which are projected from two to three times as far as the light from ordinary motor cycle lamps. When passing through towns or traffic the blinding centre rays can be entirely eliminated in an instant by means of The Patent Self-Eclipsing mechanism, leaving only the diffused light, the full illuminating power being immediately resumed whenever desired.

Mr. W. H. WELLS, the famous motor cyclist, writes: "You have certainly got a winner in the 'AUTOCLIPSE' Motor Cycle Lamp.....although I am very near sighted I can see the road perfectly for 100 yards ahead."

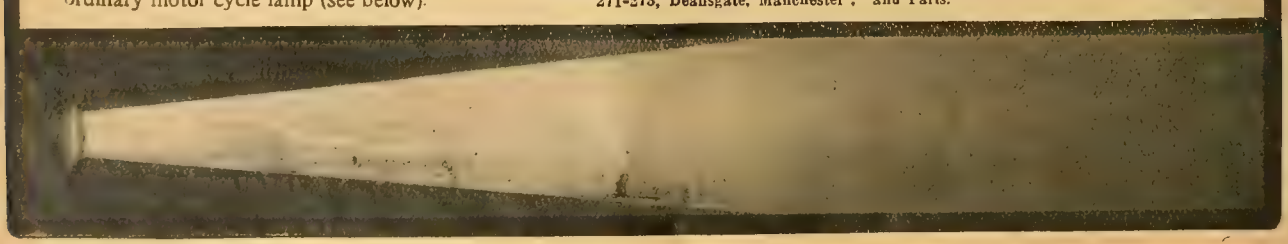
With Eclipse Mechanism, brass 30/-, plated 35/-.
Without Eclipse Mechanism, brass 24/-, plated 27/-.

"Autoclipse" Booklet post free from Sole Licensees:

BROWN BROTHERS, LIMITED,

West End Showrooms: 15, NEWMAN STREET, OXFORD STREET, W.
Wholesale only: GREAT EASTERN STREET, LONDON, E.C.
271-273, Deansgate, Manchester: and Paris.

THE "Autoclipse" MOTOR CYCLE LAMP.



Triumph

End-to-End Record.

Marvellous Performance by an Amateur.

Mr. Arthur W. Bentley, an amateur rider, mounted on a Triumph 3½ h.p. Motor Bicycle, started from John-o'-Groat's to lower the existing End-to-End Record. He reached Land's End in 41 hours 28 minutes, reducing the previous record time by no less than 7 hours 8 minutes.

886 miles in 41 hours 28 minutes on a single cylinder 3½ h.p. Triumph Motor Cycle.

This Record was officially timed:

TRIUMPH MOTOR BICYCLE	Record	-	**41**	hours	**28**	mins.
Previous „ „	„	-	48	„	36	„
Motor Car	„	-	42	„	5	„

June 5-6.

M.C.C. London-Edinburgh, 24 hours.

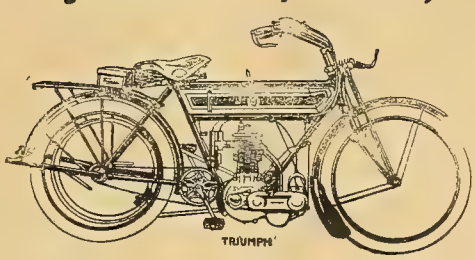
24 Triumphs finished in schedule time.

All these were Amateur Riders.

Triumph Cycle Co., Ltd., Coventry.

LONDON:
4-5, Holborn Viaduct, E.C.

LEEDS: 4, King Edward St.



MANCHESTER:
160, Deansgate.

GLASGOW: 101, Mitchell St.

In answering this advertisement it is desirable that you mention "The Motor Cycle."

LONDON to EDINBORO'

— IN COMFORT —

ON A

'BAT'

THE PULLMAN CAR OF MOTOR CYCLING.

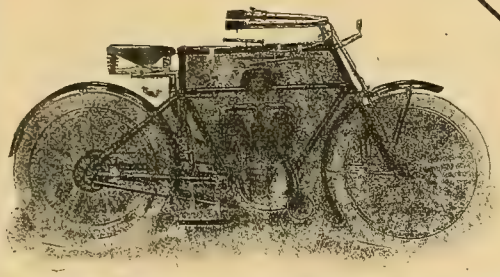
SPRING FRAMES & FORKS.

Hampstead,
June 8th, 1908.

Dear Sirs,

You will, I daresay, be interested to hear that Mr. Myers and I reached Edinboro' in 22½ hours. Mr. Myers had tyre troubles otherwise the machine ran well. Except to change a plug I never touched mine at all. Also on the 12 hour London to Coventry run I got through without any trouble. **The comfort of the spring frame** which I have always believed in enabled me to arrive feeling quite fit.

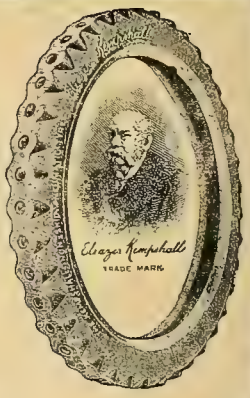
Yours faithfully,
G. L. ROWDON.



JAP ENGINES. AUTOMATIC LUBRICATION.

THE BAT MOTOR MANFG. CO., PENGE, LONDON, S.E.

KEMPSHALL



BRITISH **TYRES** MADE.

FITTED TO A ROVER CAR, WHICH WAS AWARDED

GOLD MEDAL

IN THE MOTOR CYCLING CLUB'S RUN FROM

LONDON TO EDINBURGH.

THE ONLY SET IN THE RUN.

Ullswater Hotel, Patterdale, Whit-Monday.

Dear Sirs,—All the four Kempshall Tyres fitted to my Rover car carried me through the M.C. Club's London to Edinburgh run without the slightest trouble whatever. I have not touched them since I fitted them. We arrived well inside time, securing the Club's Gold Medal. I am very pleased I tried them.

Yours truly, (Signed) F. C. DEE.

ALWAYS GRIP.

NEVER SLIP.

Manufactured by Chas. Macintosh & Co., Ltd., Manchester, England, specially for **THE KEMPSHALL TYRE CO. OF EUROPE, LTD., 1, Trafalgar Buildings, Northumberland Avenue, London, W.C.**

These tyres can also be purchased at 17, Shaftesbury Avenue, London, W.C.
Agents for the United States: Messrs. Cryder & Co., 583, Park Avenue, New York.

VINDEC · SPECIAL

THE · MOTOR · CYCLE · OF · MERIT.

S.B.T. Co Ltd

S.B.T. Co Ltd

-RELIABILITY-

LONDON TO EDINBURGH.

In this event the "VINDEC SPECIAL" motor cycles again proved their high efficiency and absolute reliability.

Fifteen "VINDECS" started, out of which thirteen got through to Edinburgh successfully. The only two that did not finish were barred through unfortunate accidents and not through any fault of their machines whatever.

The Schulte Cup and the Motor Cycle Challenge Cup

FOR THE

London to Edinburgh and Return Competition.

Five "VINDEC SPECIAL" motor cycles entered for these events, and five "VINDEC SPECIALS" completed the double journey within maximum time, further proving their reliability under the hardest possible conditions.

The Motor Cycle, issue June 10th, 1908, in describing the event, says: "Gwynne, Phillips, and Summers suffered no trouble whatsoever, and expressed themselves delighted with the journey." They all rode "VINDEC SPECIAL" motor cycles, and had no worry."

"VINDECS" at Cambridge and Oxford.

May 16th and 23rd.—In the Cambridge University M.C.C. combined hill climb, petrol consumption, and reliability trial, for the Hon. C. S. Rolls Cup, Mr. E. D. Dickson, on a 5 h.p. "VINDEC," gained the highest order of merit.

May 28th, 1908.—In the Bocardo M.C.C. (Oxford) combined hill climb and speed-judging contest, Mr. H. J. Hill, on a 5 h.p. "VINDEC," gained the highest order of merit.

Every purchaser of a "Vindec Special" may rest assured that he is getting absolutely the BEST motor cycle, and that no one is riding in competitions specially built "Vindecs" designed for a particular purpose. It is the consistent running—under all conditions—of these machines which has won for them the name of the "GOOD OLD VINDEC."

Let us send you our fully illustrated and descriptive booklet of the "Vindec Special"—sent free upon request.

SOUTH BRITISH TRADING Co LTD

13 & 15 WILSON ST, FINSBURY. LONDON. E.C.

In answering this advertisement it is desirable that you mention "The Motor Cycle."

The New Tyre which is creating such a sensation in the Motor Cycling World.

Stands up on "Grease."

Full of Life.

A wonderful wear-resister and as near puncture proof as possible.

Indispensable for The Tourist.

Absolutely essential to the Speed Merchant.

Perhaps you may have to insist when ordering, but they are worth it.

The Continental Tyre and Rubber Co. (Great Britain), Ltd.,
102-108, Clerkenwell Road, E.C.

In answering this advertisement it is desirable that you mention "The Motor Cycle."

MORE RECORDS
ON
DUNLOPS

May 24th, 1908.—THE

French Kilometre Record.

The Speed Championship of France.

Won by Hourlier, on a Peugeot motor cycle, fitted with

DUNLOP TYRES.

May 28th, 1908.

New Record for Ten Miles

on the Canning Town Track.

Mr. C. R. Collier, riding a twin-cylinder Matchless motor cycle, established a new record on the above track, covering the ten miles in 10 min. 26⅖ secs.

AVERAGE SPEED PRACTICALLY 58 MILES PER HOUR.

His machine was fitted with

DUNLOP TYRES.

Send for booklet, gratis and post free.

DUNLOP TYRE CO., Ltd., Aston, BIRMINGHAM; Alma Street, COVENTRY.

Branches: London, Nottingham, Manchester, Newcastle, Norwich, Bristol, Leeds, Glasgow, Dublin, Belfast.

PALMER TYRES

The Palmer Motor Cycle Tyres are treaded with the well-known "rib," being designed to give a better grip on greasy roads. No side-slip attachments are needed with this ribbed tyre. The Palmer Motor Cycle Tyre for the same reason has a much smaller contact area with the road, giving a firmer grip and higher speed with less slip. Send for fully descriptive Booklet to

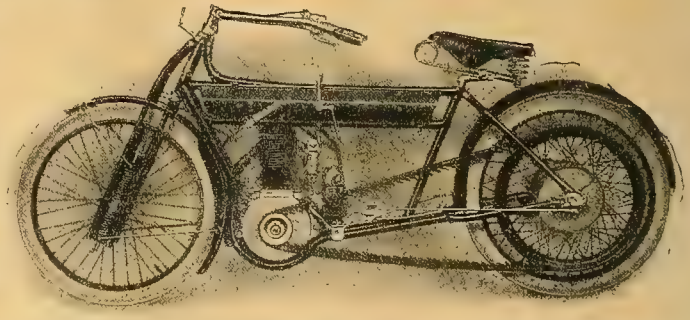
THE PALMER TYRE LTD.,
119, 121, 123, SHAFTESBURY AVENUE, LONDON, W.C.

ON THE . . . . WARWICK (Car Style) MOTOR CYCLE

the unnecessary pedal gear—a survival of primitive times—is eliminated and **Internal Expansion Clutch** (Roc licensed) and **Two-speed Gear** are substituted. It is hand-started, just like a car, and the drive on the higher speed is **direct.**

THE WARWICK has 4 h.p. **ball Bearing Engine, Magneto, Live Axle, Spring Forks,** and heavy Dunlop or Clincher Tyres. Price **45 Guineas.**

Let us send you pamphlet describing this **IDEAL MACHINE.**



Second-hand machines taken in exchange. Machines of any make fitted with TWO-SPEED GEAR AND CLUTCH.

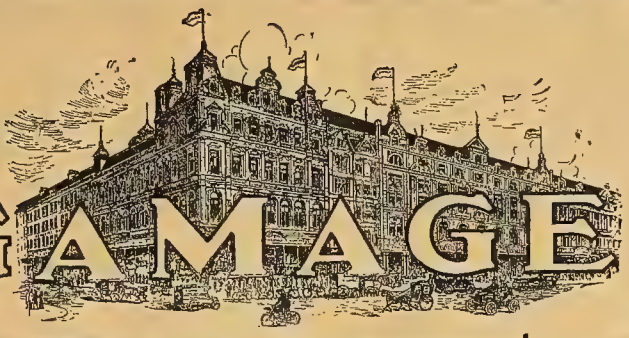
THE PREMIER SEARCHLIGHT—a miniature car lamp with mirror lens reflector, dissected front glass, and separate generator, price **30/-** complete; has revolutionised the lighting of motor cycles. Send for details. **MAY BE HAD ON THREE DAYS' APPROVAL.**

THE PREMIER TUBULAR STANDS AND CARRIERS fit all makes of Motor Cycles. Light, strong, firm, well finished. Stands, **7/6**; Carriers, **8/6. ON THREE DAYS' APPROVAL.**

THE PREMIER ROAD CLEARER. The most efficient warning yet introduced. Without horn, **8/6.** With two-coil plated horn, **12/6. ON THREE DAYS' APPROVAL.**

THE PREMIER MOTOR Co., Ltd., ASTON ROAD, BIRMINGHAM.

"THE MOTORIST'S MECCA."



GAMAGES

30 YEARS' REPUTATION FOR VALUE.

RICH'S DETACHABLE TUBES

the genuine (not butt-ended). Having free circulation of air all round. Improved pattern, quite new and fresh.

NOTE "GAMAGE PRICES"

(typical of the value on every article):

Usual price	26x2 14/-	26x2¼ 14/6	26x2½ 15/6	28x2 14/6	28x2¼ 18/6	28x2½ 16/6
Gamage price	**12/3**	**12/6**	**14/6**	**12/6**	**14/6**	**15/6**

Fitted with best Valves, seated on the inside. All Motor Cycle Tubes are made of Moseley's **Best Quality** Rubber and Standard Weights.

SPARKING PLUGS.

A really high-grade plug at a very reasonable price is the **"L.M."** it is beautifully finished in every way, and always gives satisfaction.

White porcelain, **1/11**; blue porcelain, **2/4½**.

MAGNETO PLUGS.—The **"FAROUZ"** cannot be equalled at anywhere near the price **3/3.**

VOLTMETERS.

We recommend the **"GAMAGE BEEZ"** as the highest-grade voltmeter made, and you can't have too high a grade in a voltmeter. We fully guarantee it.

Price **11/3.**

(Several cheaper in stock—and several dearer.)

GOGGLES.

The **"POPULAR"** (as illustrated), latest style glasses, soft leather mask, **1/9**; superior, **3/6**; ditto with nose protector, **4/6**; ditto, larger mask, **5/6.**

The **"SIDE WINDOW"** (four glass) goggle, detachable glasses, and leather shields, **9d.** (elsewhere 1/6); superior, hinged frames, **1/9** and **3/6.**

The **"ALL-RUBBER GOGGLE,"** detachable curved glasses, **2/6**; ditto, genuine original make, with smoked and plain detachable glasses, **3/-.**

DUST CLOTHING.

WASH-ABLE AND HARD WEARING.

West-end garments at the price of the other sort.

Full Length Dust Coats Single Breasted **7/11** and **15/11.** Double Breasted **12/11** and **18/6.**

Brown Holland Over-Jacket, **7/11.**

Leggings to match **3/11.**

Super Quality Jackets **11/6.**

Leggings **6/11.**

All our dust coats are fitted windcuffs.

CAPS.

A beautiful Tussore Silk Cap, silk lined (similar to illustration) with button over flap. Very pleasant for summer. Price **3/6.** Also in Fawn Canvas, or in best quality Tweed, same price. Ditto, in White Linen or Duck, **2/6.**

BREECHES.

Latest Shape Motoring Breeches, in best Bedford Cord, with inside knee strapping, laced knee, **10/6.** Ditto, in Derby Tweed, button knee, **12/6,** Black Leather, **17/6** and **21/-**

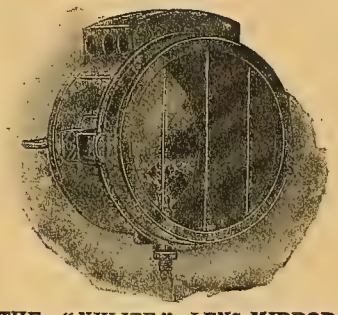
(Give waist, hip, thigh, knee, calf, and inside leg to ankle measurements.)

OUR SPECIALITY.

SUMMER GLOVES.

Double Texture Cotton Net Motor-Cycling Gloves, with ventilated palms of soft Cape leather, 1 spring-dome fastener. In Dark or Light Tans and Greys, **1/11** per pair.

VERY COOL.
VERY POPULAR.



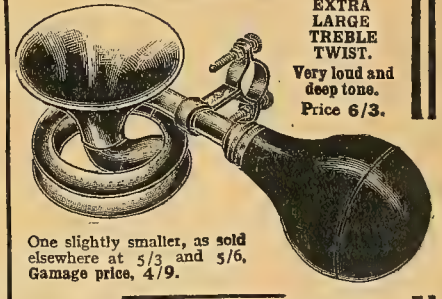
THE "NULITE" LENS-MIRROR HEAD LAMP

FOR MOTOR CYCLES AND TRICARS.

The original, not to be confused with the many shoddy imitations now on the market. The **"Nulite"** is an exact copy in miniature of the car and army searchlights. It is of solid brass, and copper riveted. The divided front glass does not rattle, cannot crack through the heat, prevents glare, and diffuses the rays, which are thrown a hundred feet ahead. The powerful, brilliant mirror-lens is a work of art in itself, and does not tarnish. It weighs no more than an ordinary headlight, and, altogether, is the ideal and scientifically perfect lamp.

PRICE, COMPLETE WITH SEPARATE GENERATOR, LENGTH OF TUBING, SIDE OR BACK-BRACKET FIXING, BRASS OR PLATED,

27/6 COMPLETE.



EXTRA LARGE TREBLE TWIST. Very loud and deep tone. Price 6/3.

One slightly smaller, as sold elsewhere at 5/3 and 5/6, **Gamage price, 4/9.**

Latest and Best at Special Prices:

BELTS, TYRES, SPRING FORKS AND SADDLE PINS, TOOLS, PULLEYS, PARTS, &c., &c., &c.

See the 1908 Edition of

"EVERYTHING for the MOTORIST."

The finest book of its kind published. A book of money-saving interest.

— POST FREE ANYWHERE. —

A. W. GAMAGE, Ltd.,
HOLBORN, LONDON, E.C.

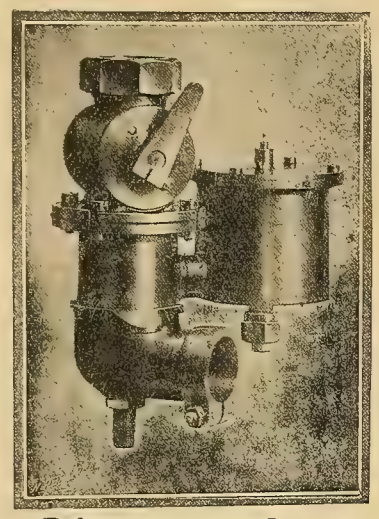
OUR PRICES, being based on a minimum working profit over cost of production, ARE FOR CASH ONLY, except where clients avail themselves of our deposit account system.

BENETFINK, Ltd.,
CHEAPSIDE, LONDON, E.C.

"J.A.P." MOTORS.

EDINBURGH RUN.

Eight Japs started, Seven arrived.



PORTMARNOCK RACES.

Two Miles Handicap.

Japs First.

Twenty Miles Handicap.

Jap First, Second, and Third.

Ten Miles World's Record broken on 6 h.p. Jap Motor at Canning Town, May 28th, by R. C. Collier.

JAP PATENT CARBURETTORS. JAP PATENT VARIABLE SPEED PULLEY.

Price .. .. £2 2 0. CATALOGUES FREE.

JOHN A. PRESTWICH & CO., 1, Lansdowne Road, Tottenham LONDON, N.

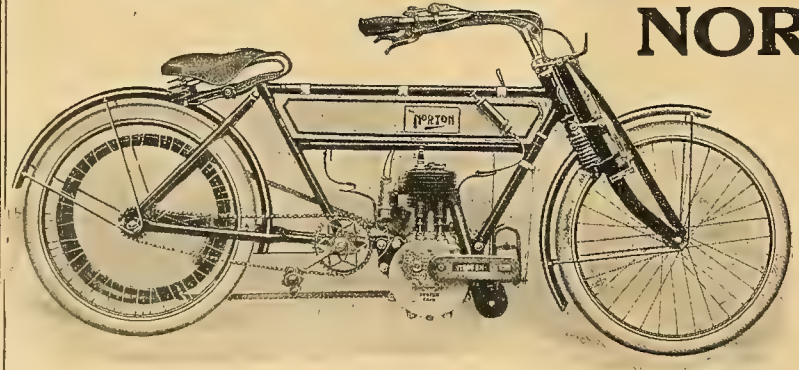
Telephone—1822 Tottenham. Telegrams—"Prestwich, Tottenham."

THE NORTON

Telephone—5702 Wires— "Nortomo."

WINNER OF THE NTERNATIONAL TOURIST TROPHY RACE, TWIN CLASS.

NORTON =



Economy, Efficiency, Durability. Accessibility.

"My success is due to my un approachable Norton." (Testimonial.)

Engine.—"THE NORTON." Designed on lines of Efficiency and Durability, eliminating the faults common to the average Motor Cycle Engine, **Single-cylinder.**—3½ H.P. Bore 82 m/m x 90 m/m stroke. M.O.I.V. **Twin-cylinder.** 5 H.P. Bore 76 m/m x 80 m/m stroke. A.I.V. **The Bearings** are correctly dimensioned, the main shafts running on balls. **The Frame.**—20in. This has an extremely neat appearance, giving a 58in. wheelbase, a large tank capacity, and very low seat without freakish design. The height from ground to TOP of seat tube is 28½in. **Petrol Capacity** 2 gallons. **Oil Capacity** ½ gallon. **Ignition.**—By High Tension Magneto, unless otherwise ordered. **Control.**—From handle-bar or by tank levers.

SHOWING AT THE SCOTTISH NATIONAL EXHIBITION, EDINBURGH.

THE NORTON MANFG. CO., LIMITED., BIRMINGHAM.

LONDON—Moto-Reve Co., Gray's Inn Rd. EDINBURGH—Alexandra & Co., Lothian Rd, LIVERPOOL—Mersey Light Motor Co., Renshaw St.

A broken arm

costs more than Elastes.

Why wait till a puncture or cut brings you down?

Why invite tyre trouble each time you ride on air?

Have your tyres filled with

ELASTES

The best thing "in" tyres.

Filling your tyres with Elastes means filling your mind with ease. Same resiliency, same satisfaction as with air, but without the pneumatic worry. Wear the Elastes smile this season.

THE ELASTES Co., Ltd.,
79-80, York St., Westminster, London, S.W.
Teleg.: "Elastesque, London." Telep.: 2173 Victoria.
Obtainable at all Dunlop Depots and Motor Agents everywhere.

A BELT THAT'S FAMOUS AND ONE THAT WILL BE.

The merits of the leather WATAWATA, as here illustrated, have been made manifest to most motor cyclists, the faithful servant of whom it has been through many a ride. We now beg to introduce its younger, though equally meritorious, relative,

THE RUBBER WATAWATA

which is as far ahead of all existing rubber or composition belts as the ordinary WATAWATA is of leather belts. At present, the RUBBER WATAWATA is only made in one size, ⅞in. wide, but so obvious are its qualities that we fully expect a demand justifying its manufacture in other sizes. Write us for full particulars.

O. & W. ORMEROD, LD., ROCHDALE. London—W. B. BROOKE, 318, King Street, Hammersmith.

Watawata

In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

All letters relating to advertisements must state distinctly under what heading they appeared, and date of issue.

MOTOR BICYCLES FOR SALE.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange.—16, Westgate, Halifax.

HALIFAX.—1908 Rex Featherweight, Duplex frame, magneto, splendid climber, new; 25 guineas; exchanges.

HALIFAX.—Twin-cylinder magneto Vindec Special, condition exceptional; cheap, £35; spring forks.

HALIFAX.—2¾ h.p. Phelon and Moore, two-speeds, 26 wheels, carry heavyweight; £27 10s.; any trial.

HALIFAX.—Twin-cylinder Hadley, 4½ h.p., Calmon and Clinchers, 26 wheels, special finish; £17 10s.

HALIFAX.—6 h.p. twin Antoine, 26 by 2¼ tyres, R.O.M. ignition, guaranteed running order; £22.

HALIFAX.—Lightweights in going order, 25s. deposit and six monthly payments of 22s. 6d. secures 2 h.p. Quadrant, 1¾ h.p. Minerva, 2 h.p. Minerva, 2 h.p. Kelecom, 2 h.p. Quadrant, 2 h.p. Humber, 2 h.p. Universal, and 2 h.p. Princeps.—Address below.

HALIFAX.—45s. deposit and six monthly payments of 29s. 6d. secures 2¾ h.p. Excelsior, 3 h.p. Humber, 2¾ h.p. Minerva, 2¾ h.p. De Dion, 2¾ h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 3½ h.p. Rex, 2½ h.p. Aurora, 2¾h.p. Kerry, 3 h.p. M.M.C.; all guaranteed running order.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

This Column

should be read very carefully. It is not possible to find better value than the machines SOILED and SECOND-HAND in the following list. They are ALL complete and in good order for the road. The Premier CERTIFICATE of FITNESS is given with each.

N.S.U., new, 1906 Roc clutch, two-speed gear; cost £70	£55 0
N.S.U., 3¾ h.p., 1905, with Sidecar	40 0
REX, 1908, 3½ h.p. de Luxe, 2-speed gear, magneto, accessories	40 0
ROC, 1908 Military Model, clutch and 2-speed, spring forks	40 0
ROC, 5 h.p., magneto, Roc clutch	32 0
TRIUMPH, 1907, 3½ h.p., magneto	35 0
N.S.U. Twin, 6 h.p., magneto, 2-speed gear, splendid machine	35 0
REX 1907 Lightweight, not used	22 0
VINDEC SPECIAL, 3½ h.p., magneto, Truffault forks, adjustable pulley	30 0
TRIUMPH, 3 h.p. magneto	30 0
VINDEC SPECIAL, 1906, 5 h.p., Truffault	27 0
REX DE LUXE, Roc clutch and gear, perfect order	26 0
ZENITH BICAR, 4 h.p., Whittle belt, free engine	22 0
MINERVA Twin, 4½ h.p., spring fork, absolutely perfect	22 0
ROC, magneto, Roc clutch, spring fork, good condition	19 10
EXCELSIOR, 2¾ h.p.	7 10
KERRY, 4½ h.p., Twin, 2-speed	19 0
MINERVA, 2 h.p., spring forks, B100 saddle, tyres like new	9 10
WHITLEY, 3½ h.p.	10 0
BROWN 2 h.p., good going order	5 0
REX TRICAR, faultless, running splendidly	23 0
STEVENS TRICAR, two speeds, free engine, wheel steering	33 0
RILEY 5 h.p. 1907 TRICAR, two speeds, spring frame, wheel steering, coach built, three brakes, run 250 miles, cost £90, grand bargain	55 0

Ask for full particulars of any of the above.

Others constantly arriving. Complete list free on application.

See our advt. of

The WARWICK (Car Style) MOTOR CYCLE

elsewhere in this issue. Also

PREMIER STANDS and LUGGAGE CARRIERS, PREMIER SEARCHLIGHT, etc.

—Ask for our LIST of TYRE BARGAINS.—

NEW Peter Union Covers, Fresh Stock.

24 × 2¼	0 18 6	From 4/- to 7/- less than ordinary price.
26 × 2¼	1 1 6	
26 × 2½	1 5 0	

NEW Peter Union Tubes, 8/- to 10/6.

NEW Clincher Tubes, 7/6, etc., etc.

Sent on 3 days' APPROVAL.

PREMIER ACCUMULATORS.

Sent on 3 Days' Approval.

Specially heavy plates—do not disintegrate.

10 amp. .. .. 9/6 } List on
20 „ .. .. 12/6 } application.

Send for pamphlets "On the Choice of a Motor Cycle," "Motor Cycles of 1908," "Everything for the Motor Cyclist."

Premier Motor Agency

Aston Road, BIRMINGHAM.

Telephone: 4310. Telegrams: "Primus," B'ham

MOTOR BICYCLES FOR SALE.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange.—16, Westgate, Halifax.

HALIFAX.—Twin-cylinder Onaway, spray, specially low, suit short rider; £22 10s.; spring forks.

HALIFAX.—4 h.p. Alcyon, fine 26 by 2½ tyres, twin, spring forks, N.S.U., two-speed gear, light and low; £23 10s.

BRAND New N.S.U. Lightweight, magneto, spring forks, stand, never ridden; £28.—Below.

3 h.p. Brown, new last August, every part perfect; £20; new or old cycles half payment.—Below.

LIGHTWEIGHT 2 h.p. Ariel, 21in. frame, three-speed gear, enamel, plating, tyres scratchless; £15.—Wilks, Crickhowell.

2¾ h.p. Minerva, B.S.A. frame, good condition; £13.—Day, 40, St. Donatts Road, New Cross.

MINERVA, 1½ h.p., excellent machine for beginner; only £5.—Heybourns, Motors, Maidenhead.

2¾ h.p. Enfield-Minerva, spares, splendid bargain.—Particulars, Ince, 392, Halliwell, Bolton.

BROWN, 1907 model; genuine 3½ h.p., all accessories. — H.F., 11, Badlis Road, Walthamstow.

GUARANTEED Twin Rex, spring forks; £17 10s.; no offers; trial.—Hardy, Carlton Street, Halifax.

4 h.p. Military Model Roc, handle starting, magneto, new condition; £23 10s.; any trial.—Marsh House, Leominster.

3 h.p. Triumph, splendid condition, spring seat-pillar, Lucas lamp, horn; £19.—Wallis, 88, Lansdowne Road, Croydon.

2¾ h.p. F.N., in splendid condition, Continentals, re-enamelled; genuine bargain, £10 10s., or offers.—David Bowen, Dawley, Salop.

BRAND New 1908 Model Rex de Luxe, 5 h.p., magneto, free engine, just delivered; no reasonable offer refused.—Stone, Staveley, Derbyshire.

HUMBER, 3 h.p., chain drive, Dunlops, accumulator ignition, E.I.C. coil, perfect condition; £12.—W. Emmerson, jun., Evenwood, Bishop Auckland.

1913 3 h.p. M.M.C., Chater-Lea frame, Longuemare, Continentals, low built, splendid condition; £16 16s.—A. J. Slatter, 59, Cranfield Road, Brockley, S. E.

7 h.p. Peugeot, Chater-Lea, low, Longuemare, fast, two extra pulleys, 1in. rubber belt, perfect condition; £25; exchange for good tricar.—85, Court Road, Barry Dock.

MINERVA, 2¾ h.p., good running order, almost new Palmer back tyre and Dermatine belt and Advance adjustable pulley; only £10 10s.—Heybourns, Motors, Maidenhead.

2¼ h.p. Lightweight Motor Cycle, just enamelled and plated, bushed, and new piston, thoroughly overhauled, Dunlops, powerful and reliable.—Greenfield, 16, Temperley Road, Balham, London.

POWERFUL 5 h.p. Twin Rex, 1907, late model, used only four times in trials, in two of which it finished first, practically new; £25 10s.—Alexander's Motor Exchange, 110, Lothian Road, Edinburgh.

MOTOR Cycle, Rex de Luxe, only a month in use; offers wanted.—Alexander's Motor Exchange, Edinburgh.

2¾ h.p. Lloyds, in splendid condition; £11 10s.—Alexander's, Edinburgh.

3 h.p. Humber, Dunlop tyres, free engine, very powerful.—Alexander's, Edinburgh.

5 h.p. Antoine, twin, will take a sidecar anywhere, good as new; £20.—Alexander's Motor Exchange, Edinburgh.

SHOP-SOILED N.S.U., 3½ h.p., Quadrant, 3½ h.p., Adler, 3 h.p.; bargains.—Alexander's Motor Exchange, 110, Lothian Road, Edinburgh.

MOTOR BICYCLES FOR SALE.

STOCKPORT.—5 h.p. 1907 Vindec, magneto, Kempshall 2½ non-skid tyres, Truffault forks; 30 guineas.

STOCKPORT.—4 h.p. 1907 Twin N.S.U., magneto, two speeds, free engine; 26 guineas.

STOCKPORT.—2½ h.p. Lightweight, perfect order, 26 by 2¼ Clinchers, unscratched, low build; £12.

STOCKPORT.—2 h.p. Minerva, 2¼ Clinchers, almost new, in running order; £8 only.

STOCKPORT.—Have you seen a Midget Bicar? The all-weather machine built like a car. Top of saddle 30 inches from the ground. Write for catalogue, or come and try one. Easy payments and exchanges arranged.—Lund and Davies, Heaton Lane, Stockport.

REX, 3½ h.p., Mills-Fulford sidecar: £15 15s. lot.—139, Kennington Park Road, S.E.

2¾ h.p. Kelecom, Palmers, good running order; £8 5s.—Clark, 109, The Grove, Stratford.

2¾ h.p. Brown, good condition, tyres as new; £10, or offer.—Rivett, High Street, East Ham.

ARIEL, twin, 5 h.p. Jap, condition new; £28, bargain.—1, Arminger Road, Shepherd's Bush.

£4 15s.—1¾ h.p. Minerva, good order, new tyre.—Markham, Wrotham Park Gardens, Barnet.

REX, 3½ h.p., in splendid condition, spring forks.—Wilkins and Son, High Street, Calne, Wilts.

TRIUMPHS, 1908, in stock; best prices allowed for second-hands.—Parker, Melbourne, Derby.

2 h.p. Werner, thorough condition, two brakes; bargain, £7 10s.—76, Albert Road, Peckham.

2¾ h.p. Brown, complete, excellent condition, long handles; trial; £15.—B. Kemsley, Epping.

TRIUMPH, 1907, guaranteed perfect throughout; any trial; £31.—Parker, Melbourne, Derby.

FOUR-CYLINDER F.N., 1907, splendid dition, footrests, spares; cheap.—Jo... Lynwood, Orpington.

REX, 1908, in stock, Bosch magneto, 3½ h.p., discount for cash, or exchange.—Parker, Melbourne, Derby.

2¼ h.p. Quadrant, F.N., spray, splendid condition; seen after 6; £10 10s.—9, Chantry Road, Brixton.

SACRIFICE.—2¾ h.p. Vindec Special, very low; £11.—Motorist, 149, Sandringham Road, Dalston, London.

2¼ h.p. Fafnir, in splendid running order; £10 lowest; wanted, a good tricar.—19, Avenue Road, Isleworth.

3¼ h.p. Ormonde, Kelecom engine, climb any hill; £9.—25, Charlotte Street, Caledonian Road, London.

2¼ h.p. Kerry, splendid machine; £13, near offer; owner bought twin.—25, The Gardens, East Dulwich, S.E.

3 h.p. Cycle, F.N. engine, almost new, Palmer tyres, stand, etc.; £16.—Motor, 174, Kingsland Road, Shoreditch.

1908 Triumph, new, £44; twin Peugeot, new, £28; Peugeot, 2 h.p., as new, £9.—Worswick, 18, Malo Road, Wigan.

£8.—2 h.p. Minerva (spray), grand goer, absolutely perfect.—3a, Princes Mews, Princes Terrace, Bayswater, W.

BAT, 3 h.p., spring frame, very fast, perfect, spares; £15, bargain; after 7.—J.D., 20, Kendoa Road, Clapham.

3 h.p. Triumph, Fafnir engine, splendid condition; £14.—W., 18, Ferncliff Road, Sandringham Road, Dalston, London.

QUADRANT, 3½ h.p., 1906, reliable, ready for the road, tyres nearly new; £20, no offers.—Penfold, Kingscote, Beaconsfield.

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3½ h.p. N.S.U., accumulator, good condition, lamp, stand, and tools; £15 10s.—Hancock, 6, Meadowside Terrace, Chelmsford.

BARGAIN.—3½ h.p. Rex, late 1906, spring forks, very low; £12.—Motorist, 54, Montague Road, Norfolk Road, Dalston, London.

N.S.U. 5½ h.p. Twin Bike, new, low frame, 2½ tyres, spares, tools, lamps, etc.; £30, bargain.—John Wiswall, Stanley Villas, Runcorn.

2¾ h.p. Clement-Garrard, chain and V belt drive, spring forks, horn, spare valves, good running order; £10.—Webb, Garbett Street, Accrington.

REX, 3½ h.p., Longuemare carburetter, P. and B. accumulator, A Won Clinchers, 26 by 2, perfect condition.—H., 53, Church Street Kensington, W.

2½ h.p. Minerva Motor Cycle, lightweight, in splendid condition, fine goer, complete; only £9.—F. Jermy, Leighton Holme, Frimley Green, Surrey.

2½ h.p. Matchless-Jap, magneto, lady's model, first-class condition; seen any time; 20 guineas, or close offer.—107, West Green Road, Tottenham.

LOOK!—2¾ h.p. Genuine De Dion, No. 6 Chater-Lea frame, very low, brass torpedo tank, Palmers; 13 guineas.—149, Sandringham Road, Dalston, London.

TWIN Rex 5-6 h.p. Motor Cycle, free engine, Whittle belt, also best Montgomery sidecar, all in excellent condition; £29 10s.—63, Derby Street, Bolton.

3½ h.p. Rex, new, 1908 model, ball bearing engine, magneto, absolutely new, unridden; cost 38 guineas, accept £33.—Box No. 87, *The Motor Cycle* Offices, Coventry.

1907 2¾ h.p. Werner, spring forks, 26in. by 2¼in. tyres, enamelled rich French grey; £14, or exchange good piano.—Spurling, 33, Leybourne Road, Kentish Town, N.W.

2¾ h.p. De Dion, Longuemare spray, trembler, tyres as new, long bars, just overhauled, fast; £9, or nearest offer.—Hampson, 21, Northam Street, Lewisham Road.

3¼ h.p. De Dion, Chater 5a frame, 26in. wheels, Continental and Clincher, two tanks, long handle-bars, machine nearly new: £17, or offer.—Lewis, Colville Road, Leyton.

3½ h.p. Water-cooled Genuine De Dion Quad, coach-built, in good running order; £10, or would sell engine and parts separate.—Gaston, Kingsman Street, Woolwich.

3½ h.p. Triumph, 1907, magneto, not ridden until 1908, absolutely new condition, tyres perfect, latest B. and B., complete, accessories, been 500 miles; £33.—89, Wallgate, Wigan, Lancs.

TRIUMPH, magneto, 1907, standard in all details, absolutely perfect, enamel and plating practically unscratched; expert examination invited: any trial; £32; approval.—Jack, below.

TRIUMPH magneto, July, 1906, tyres and everything in splendid condition, engine just been overhauled by makers; £23: owners buying 1908 Triumphs.—Charles, 32, Cambridge Road, Wanstead.

GENUINE Bargain.—3½ h.p. Peugeot, Chater-Lea, long, low, heavy Watawata, variable pulley, condition new; £20, nearest offer; trailer, 35s.—Smith, 44, Court Street, Faversham.

3¼ h.p. Quadrant, thorough going order, spring forks, Longuemare, Palmers two accumulators, stand, and accessories; £13.—A. Beaumont, Nelson House, West Street, Carshalton, Surrey.

MINERVA and Rex.—We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

C. E. BENNETT.—2¾ h.p. Mansfield, Buchet racer, for sale, holds many records, will do a mile a minute, comfortable with right man on it, £30 lowest cash, or motor bike, value £10, and £20 cash; one 2¾ h.p. Buchet racing engine, new, £10, cost £11.—C. E. Bennett, 3, Morgan Street, Canning Town.

MOTOR BICYCLES FOR SALE.

5 h.p. Twin Hamilton, fast, racy machine, suit passenger work; £16 10s.

3½ h.p. Werner Twin, very light and fast machine; £16.

2 h.p. Rex Light Motor Cycle, smart machine; £8.

2¼ h.p. Humber Lightweight, climb almost any hill, splendid condition; £8 10s.

3 h.p. Trent, in excellent condition; £11 cash, bargain.

2¾ h.p. Bradbury, fast, powerful machine; £10 15s.—128, High Road, Tottenham.

3½ h.p. N.S.U., low frame; going cheap at Wauchope's, £15.—9, Shoe Lane, Fleet Street, London.

1908 3½ h.p. Triumph, not run 100 miles, new condition; reason for selling, doctor's orders; £43.—No. 91, *The Motor Cycle* Offices, Coventry.

3½ h.p. Quadrant, vertical engine, in splendid condition; £15, first cash.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

TRIUMPH, 3½ h.p., 1907, magneto model, A Won tyres, spring forks, carrier and stand, guaranteed in perfect condition.—Moss, Wem, Salop.

4 h.p. Scout, in very good condition, Longuemare carburetter, Dermatine belt, tyres (new); £12; good reason for selling.—Apply, 92, *The Motor Cycle* Offices, Coventry.

3½ h.p. Fafnir, as new, M.O.V., Chater-Lea frame, non-skid back; £18 10s.; this machine has not run 100 miles.—Wauchope's, 9, Shoe Lane, London.

C.I.E., 4 h.p., magneto, latest B. and B. carburetter, with handle-bar control, spring forks, brass horn and tank, carrier and stand, very powerful machine.—Moss, Wem, Salop.

4½ h.p. Twin-cylinder Minerva, very low frame, 26 by 2½, new tyres, new belt, in perfect condition throughout; £19 19s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

QUADRANT, 3 h.p., A Won tyres, latest B. and B. carburetter, with handle-bar control, carrier and stand, guaranteed reliable, and good hill-climber.—Moss, Wem, Salop.

2¾ h.p. F.N., very reliable machine, no signs of wear, vertical engine, Chater-Lea frame, Brooks B100 saddle, Palmer tyres; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

9 h.p. Bat-Jap, spring frame and forks, disc clutch, magneto, Jap carburetter, new Palmer 2½in. back, unpunctured front, automatic lubrication, 7 to 65 per hour on throttle; only £47 10s. cash; no offers.—Eric Crundall, Woodside, Dover.

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1907 3½ h.p. Minerva, as new, spring forks, Advance adjustable pulley, two belts, R.O.M. contact breaker, Bates treads and spare studded non-skid, complete with all spares, tools, lamp, horn, etc.; £19; seen any evening.—101, South Norwood Hill, S.E.

SPECIAL Bargains.—2 h.p. Minerva, M.O.V., £7 10s.; 2 h.p. Raleigh lightweight, £7 10s.; 1¾ h.p. Minerva, £5 15s.; 1½ h.p. Werner, £5 15s.; 2¼ h.p. Jap, £5 15s.; 2¾ h.p. Ormonde, £5; 3 h.p. Aster, £8 10s.; 2 h.p. Enfield, £5 15s.; and others; first cheque secures.—Wauchope's, 9, Shoe Lane, London.

5-6 h.p. Twin Bat, J.A.P. engine, with free engine clutch, spring frame and forks, accumulator ignition, Longuemare carburetter, thumb slides, Stanley Dermatine belt, Continental tyres, Model de Course on back, wheel just overhauled, plated, and enamelled, in perfect condition; price £25.—The Bat Motor Co., Kingswood Road, Penge.

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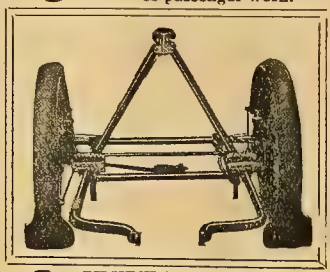

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TRIUMPH, 1906, fine condition, magneto; £20; first applicant secures.—Armishaw, Stone, Staffs.

3¼ h.p. Rex, in grand condition, spray, accumulator; £16.—Below.

3½ h.p. Rex, spray, accumulator, new tyres; accept £18.—Below.

2¼ h.p. Royal Enfield, Minerva engine, Longuemare, tyres like new; £11.—Below.

4½ h.p. Four-cylinder F.N., not run 500 miles, magneto; £23; all machines in good going order; immediate despatch.—Stake, Croft Street, Brighouse.

2¾ h.p. Vindec Special, magneto, in excellent condition and running order; £20.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MOTOR Cycle, 2¾ h.p. F.N. engine; £7 10s.—Sneed, 40, Northborough Road, Norbury, S.W.

3 h.p. Quadrant, in good running order; £12 12s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

ROC, 3½ h.p., magneto, clutch; beautiful condition; bargain, £19 19s.—41, Skelbrook Street, Earlsfield.

3½ h.p. Peugeot, 80 by 98, torpedo tank, Chater low frame; £21.—Wauchope's, 9, Shoe Lane, E.C.

TWIN Chater-Lea Minerva, just delivered, compulsory sale; 25 guineas.—F. Robertson, 49, Jeffrey's Road, S.W.

3½ h.p. Griffon, fast machine, good hill-climber; £11 10s.—T. Baker and Sons, Friar Street, Reading.

BARGAINS.—2¾ h.p. Werner, £7 10s.; 3 h.p. Scout, £8 10s.; 3½ h.p. Minerva, £15.—313, Coldharbour Lane, S.W.

1¾ h.p. Lightweight Wolfe, condition absolutely as new; price £15.—Wauchope, 9, Shoe Lane, E.C.

3 h.p. Triumph, magneto, extra heavy Clincher tyres, perfect condition; £25.—381, North End Road, Fulham, S.W.

6 h.p. Jap, No. 6 frame, free engine pulley; not done 500 miles; £23.—Garaged at Wauchope's, 9, Shoe Lane, E.C.

2¾ h.p. Kerry motor cycle, in good condition, new belt and accumulator; £10.—31, Fisher's Lane, Chiswick.

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3½ h.p. Twin-cylinder Peugeot, Chater-Lea fittings, torpedo tank; £22 10s.—T. Baker and Sons, Friar Street, Reading.

3½ h.p. Centaure, low built, 26 by 2½ Clincher tyres, ⅞in. belt; £12 10s.; approval.—Eagles and Co., High Street, Acton.

5 h.p. Twin Peugeot, Truffault spring forks, 26 by 2½ Michelin tyres; £22 10s.; approval.—Eagles and Co., High Street, Acton.

£8 15s.—Wearwell, 2½ h.p., stand, carrier, horn, trembler coil, spray, in good working order.—29, Liverpool Road, Islington.

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3 h.p. Whiteley, low built, for lightweight, or sell £8 16s.—W. W. Smith, Luther Cottage, Odd Down, Bath.

GENUINE Twin Rex, guaranteed in running order; £18 18s., cash, or exchange.—Motors, 16, Westgate, Halifax.

NEW Motor Lamps and Accumulators for small engine or carburetters; would sell.—99, Montague Road, Leytonstone.

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MOTO-REVES, 1908 models, immediate delivery; second-hand motor cycles taken part exchange.—Crisswell's Garage, Newmarket.

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PEUGEOT Trolley, £35; Mors tonneau car, £35; Riley car, £40; all running order; trials; exchange.—Box 85, *The Motor Cycle* Offices, Coventry.

4½ h.p. Twin Givaudan, first-class condition, exchange for lower power and cash, or sell £19 10s.—Wright, Cedar Lawn, Knott's Green, Leyton.

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EXCHANGE 2¾ h.p. motor cycle and 105 volt 10 amp. dynamo, with spare armature, by Hindley, for w.c. chain drive tricar.—Aldridge, Gillingham, Dorset.

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DUNHILL'S speed indicator (new), ⅝in. Watawata, pulley, for N.A.B. spring pillar, valve lifter, large toolbag, footrests, ½in. Watawata belt.—Flora Bank, Elgin.

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EXCHANGE, new £25 piano, 10 years' guarantee, for lightweight, magneto, and cash.—367, West Green Road, Tottenham.

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EXCHANGE, 4 h.p. Antoine, Phœnix two-speed, with tradesman's sidecar, with seat, also cane seat and springs, 2½ tyres, for 3½ h.p. Triumph, or sell £30.—Particulars from Reive, Old Cumnock.

EXCHANGE, Full Rights Patent No. 14,292, Improved Scaffolding, for use for buildings and similar operations, for good twin motor cycle of good make, or sale.—H.M., 145, Hughenden Road, High Wycombe.

CHATER Lady-back Tandem and road racer (low), best fittings, value £20, for good motor cycle and sidecar, 3½ h.p., or over; fullest particulars exchanged.—69, Leopold Buildings, Columbia Road, London.

EXCHANGE for good motor cycle, tricar (or reliable small car), new high class furniture, any description, direct from works, valued wholesale.—Furniture Manufacturer, 7-11, French Place, Shoreditch, London.

LADY'S B.S.A., two-speed, back pedalling brake, spring seat-pillar, Palmers, gent's three-speed; exchange 3½ h.p., repairs no objection if good make, cash adjustment.—Vaughan, 45, Katherine Road, Bearwood, Birmingham.

EXCELLENT 7 h.p. Peugeot Car, with detachable tonneau, three speeds and reverse, live axle, equal wood wheels, non-skid tyres, perfect order, new condition, for tricar and cash.—B., 38, Lonsdale Road, Hammersmith Bridge, Barnes, S.W.

EXCHANGE Rover Tricar, 4 h.p., w.c., chain drive, free engine, coach-built seats, lamps, spares, for good motor bike, single-cylinder, about 3½ h.p., magneto preferred, or sell.—Page, 31, Buckingham Mansions, W. Hampstead, N.W.

5 h.p. Twin Motor Cycle, practically new, 3 h.p. single Kerry, good order, Perry lady back tandem push cycle, new, Eadie gent's racing tandem ditto, Eadie racing triplet frame; best offers for any above entertained, for cars, cycles, etc.—138, City Road, Cardiff.

5-6 h.p. Antoine, perfect running order, splendid condition, non-skid tyre back, original on front, ribs not worn off, spare valves, tools, horn, stand, etc., grand sidecar machine, full particulars given; exchange for 2½ h.p. lightweight, 2¾ h.p. Minerva, or other good make and cash.—Send particulars, offers, Siddall, Burnblea Street, Hamilton.

HERCULES Cycle, three-speed, Sturmey-Archer, new, specially built, double top rail, suit tall rider, value £14; also 2¾ h.p. engine, complete, with carburetter, tank, coil, and all fitments (less frame), worth £5 5s., new; also a four-seated body, of real birch, well finished in varnish, a beauty, with two copper tanks in side panels, suit a Star pattern Benz car, worth £10, will exchange the lot for a four-cylinder F.N. motor cycle, appearance no object if engines and frame are good.—Particulars, No. 81, *The Motor Cycle* Offices, Coventry.

WANTED.

BAT Twin, 1907, or later.—Gilbert Lee, Hythe, Kent.

CAR required, about £50; also tricar.—C. Strutt, 124, Dennett's Road, S.E.

F.N. Wanted, 1907, 4½ h.p.; cheap for cash.—C. Upton, Raithby, Louth, Lincolnshire.

1908 3½ or 4½ h.p. Minerva; cheap for cash.—Forth, Meltonby Villas, Pocklington.

MODERN Two-seated Car, about 7 h.p., any condition.—R. Else, Leawood, near Matlock.

RACECOURSE Garage, Doncaster, wants to purchase modern motor cycles for spot cash.

FULLER Plain Coil, Premier No. 1, Price's stand, Midget Syntonic; 10s.—Mogridge, Topsham.

WANTED, Set 26 by 2 Motor Cycle Tyres, as new.—78, *The Motor Cycle* Offices, Coventry.

WANTED.

WANTED, Bowden Valve Lifter, also ⅞in. belt.—Frank Grace, Tring.

LIGHT Tricar wanted, 5-6 h.p., good condition.—Hobbs, 209, Iffley Road, Oxford.

LADY'S Motor Cycle Wanted, 3 h.p. — 30, High Street, Brimington, Chesterfield.

WANTED, Motor Cycles, any condition, for spot cash.—Spencer, 78, Steyne Road, Acton.

WANTED, about 5 h.p. Engine, good condition, for cash.—62, Colvestone Crescent, Dalston.

WANTED, Clamp, holding 1⅛ h.p. Clement-Garrard engine to frame.—Harold Potts, Broseley.

TRIUMPH, 1908, wanted, cash.—Price, particulars, E. Martin, 41, Cambridge Road, Aldershot.

MILLFORD Sidecar, rigid or castor, in good condition, for cash. — Stormont, Tamworth-in-Arden.

WANTED, Force Carburetter, smallest size, perfect order. — 2, Albert Hill, Bishop Auckland.

WANTED, Forks, with girders, for Minerva, 26in. wheels.—Rider, Broomfield Grove, Rotherham.

WANTED, 1907 Triumph, for spot cash, must be cheap.—Box 90, *The Motor Cycle* Offices, Coventry.

WANTED, 1908 Triumph, two-speed Vindec or Phelon and Moore.—K., Craigallion, Champion Hill, S.E.

WANTED, Brooks, or similar non-skid, also Chater hub.—H. Halse, 66, Paradise Road, Clapham.

WANTED, Small Two or Four-seater Car; cheap for cash.—Post Office, Grosvenor Road, Rugby.

TRAILER Wanted, sound condition; cheap for cash; approval.—Hedley Castle, Westgate, Southwell.

WANTED, Powerful Tricar, fast, reliable, w.c., open frame; photo.—3, Rowden's Road, Wells, Somerset.

STRONG Band Brake, also lathe, cheap (Drummond preferred). — 65, Palmerston Crescent, Southgate.

CYLINDER wanted for 1904 3½ h.p. Rex.—Particulars and lowest price to 9, Church Hill, Walthamstow.

WANTED, Motosacoche, F.N., or N.S.U. lightweight; cash.—No. 66, *The Motor Cycle* Offices, Coventry.

£10 Offered for good 3½ h.p. motor bike; give full particulars.—28, Osborne Grove, Sherwood, Nottingham.

WANTED, 3 or 3½ h.p. Fafnir motor bike; cheap, spot cash.—Buss, 14, Geisbach Road, Upper Holloway.

WANTED, 2½ h.p. or 2¾ h.p. Engine, state bore, stroke, lowest cash price.—63, Ladypool Road, Birmingham.

WANTED, Linon Cylinder and Piston, about 3½ h.p., must be in good condition.—2, College Street, Hull.

CLEMENT Engine, 1¾ h.p. or 1½ h.p., any condition, belt rim; cheap for cash.—J., 41, Arthur Road, St. Albans.

WANTED, Tricar, exchange 4 h.p. two-seated belt driven car, or sell cheap.—Wheeler, 192, Ball's Pond Road, N.

WANTED, Engine, new, fit Rex frame, not less 80 by 80, silencer, cut-out, tanks.—Rev, Wright, Falkirk, N.B.

NEW ⅞in. Shamrock-Gloria and £5 for 10-guinea special Triumph, new, gent's cycle; ⅛in. round belt, 3s.—34, New Road East, Portsmouth.

PLAIN Coil (round, vulcanite) wanted, or exchange with good trembler; sell 10s.—Young, 4, Blackwellgate, Darlington.

1908 Triumph, for cash, good condition; mileage and full particulars.—Merritt, Windermere, Blackheath Park, London.

1½-2 h.p. De Dion engine, carburetter, with magneto preferred.—Lowest price to Blackburn, 35, New Broad Street, London.

WANTED, 1½-2 h.p. Engine, De Dion preferred, must be in good condition, and cheap for cash.—Ireland, Hersle Road, Hull.

MOTOR Cycles in part exchange for new 1908 Moto-Reve lightweights; immediate delivery. — Crisswell's Garage, Newmarket.

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BRITISH MADE.

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1/2	1/4	1/8	1/11 per ft.

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The STANLEY DETACHABLE MOTOR BELT FASTENER.

With unbreakable hook. Guaranteed.
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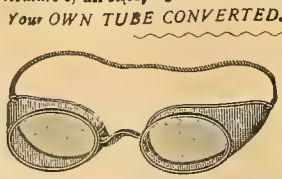
RICH DETACHABLE AIR TUBE.

24″ × 2″ **13/6**		26″ × 2¼″ **14/6**
24″ × 2¼″ **14/-**		26″ × 2½″ **15/6**
24″ × 2½″ **15/-**		26″ × 3″ **22/-**
26″ × 2″ **14/-**		28″ × 2″ **14/6**

Please write for Special List, with full prices and particulars of all sizes, together with instructions and hints.

Your OWN TUBE CONVERTED. Write for prices.



Folding Gauze Eye Shields,

flat glass, elastic fastener, and nose piece.

Light and small.

Post free, 10d.

Genuine Birmingham

"QUADRANTS."

A large stock of parts, still to be cleared.
Write for latest List.

REG. SAMSON,

232, LADYWOOD RD., BIRMINGHAM.

WANTED.

TRICAR, light, reliable, about 4 h.p.; cheap.—14, Mowbray Street, Coventry.

WANTED, Several Low Motor Cycles, about 3 h.p.; must be cheap for cash.—Robbins, Garage, 334, Clapham Road, S.W.

WANTED, Single or Double Water-cooled Engine, 10 or 12 h.p., second-hand, also 6 h.p. ditto.—82, *The Motor Cycle* Offices, Coventry.

BOOTH.—Gramaphones, typewriters, Triumph, Roc, Rexes, all models; cash waiting.—Booth's Motor Exchange, Wade Street, Halifax.

WANTED, new or good second-hand 2 h.p. Minerva engine, M.O.V., inclined, no rubbish accepted.—A.P., 6, North Common Road, Ealing.

WANTED, combustion chamber, for Auto Moto engine, 76 mm. bore; casting, or finished, without valves, etc.—4, St. Paul's Road, Coventry.

WANTED, Free engine, or two-speed gear to fit Chater-Lea-Antoine twin, also good roomy sidecar for same.—209, Banbury Road, Oxford.

WANTED, Working Partner, with £150 to £200 capital, newly erected showroom and garage. — No. 88, *The Motor Cycle* Offices, Coventry.

WANTED, Three-seated Tricar; cheap; 6 h.p., water-cooled, three speeds, coach-built.—Engineer, 65, Hilden Street, Bolton, Lancashire.

WANTED, Modern Motor Bicycle, exchange tricar, 3½ h.p. Minerva, Kent three-speed and clutch, magneto.—5, Mornington Avenue, W.

MAUDE'S wish to point out that we are now in a position to fit Bosch magnetos to all new Minervas at £5 extra.—Maude's, Powell Street, Halifax.

WANTED, inlet, exhaust valves, complete, contact breaker, complete, sparking cam for 2 h.p. Clement-Garrard engine.—24, Ludwig Road, Liverpool.

MONTGOMERY Flexible Sidecar, non-skid type, left hand, 26in. wheel, must be in perfect condition; London. — Box 64, *The Motor Cycle* Offices, Coventry.

WANTED, 4 h.p. Twin N.S.U., magneto, 1907; exchange Drummond 3½in. screw-cutting lathe and cash.—H. C. Boughton, Barton Street, Tewkesbury.

WANTED, good 2¾ h.p. Motor Cycle, in exchange for charging and lighting plant, suit small garage (Surrey).—No. 86, *The Motor Cycle* Offices, Coventry.

WANTED, Mabon Clutch, belt drive, suit 5 h.p. Peugeot, Bradbury stand, 1in. Shamrock belt, Goodrich 2¼in cover; no rubbish.—H., 186, Peckham Rye, S.E.

WANTED, 3½ h.p. Triumph, 1907, exchange 3½ h.p. Ariel-Minerva and 9-stop American organ, two swells; no fault.—Particulars, Barling, Hollingbourne, Kent.

WANTED, 3½ h.p., or twin bike, fair condition, exchange half-size Riley billiard table, as new, all accessories, and little cash.—218, London Road, Sheffield.

WANTED, Motor Cycle and Sidecar, or separate, twin, magneto, two-speed; exchange F.N., 2¾ h.p., cash instalments preferred.—67, *The Motor Cycle* Offices, Coventry.

WANTED, good motor cycle or tricar, in exchange for new furniture, direct from works, valued wholesale. — Furniture Manufacturer, 9, French Place, Shoreditch, London.

2¾ h.p. Simms, magneto, Chater-Lea, Palmers, Stanley, reliable; £11 10s., or £8 and above for 1906 Triumph, magneto, in first-class order.—93, *The Motor Cycle* Offices, Coventry.

WANTED, 4½in. by ⅞in. pulley, for 1906 twin Rex; for sale, steering wheel, with 18in. by 1in. plated stem, or would exchange for 26in. by 2¼in. cover.—Rice, 18, Princes Street, Brighton.

WANTED, to purchase for cash, Triumphs, Quadrants, Minervas, Bats, Japs, Riley, and Lagonda tricars, or exchanges arranged for new models.—Wauchope's, 9, Shoe Lane, London, E.C.

WANTED, any number of good magneto second-hand motors, F.N.'s, Minervas, Triumphs, N.S.U.'s, Vindecs, etc., by far the best prices given for good stuff, cash or exchange.—Maude's, Powell Street, Halifax.

WANTED.

WANTED, Old Accumulators; best price given.—Motories, 3, Arley Grove, Armley, Leeds.

WANTED, Reliable Car; exchange 8-10 Rexette, three-seated, or sell £45.—Matthewman, Westhome, Kirkby Lonsdale.

THE Proprietors of the patent rights of ROM synchronised contact breakers are prepared to accept offers for the rights to manufacture in France; write for particulars.—Continental Motor Co., 32, Rosebery Avenue, E.C.

CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card.—Address, "The Cycle and Motor Trades' Review" Offices, Harp Alley, London, E.C.

WANTED, 3½ h.p. low-build magneto motor cycle, Triumph, N.S.U., Bradbury, or other similar, in exchange for latest Blickensderfer typewriter, cost £12, and a No. 3 pocket folding Kodak camera, cost £3 12s. 6d., both as good as new. cash adjustment.—Reply to No. 83, *The Motor Cycle* Offices, Coventry.

MISCELLANEOUS.

ENGINES Re-bushed throughout from £1.

CYLINDERS Re-bored from 5s .

PISTONS Supplied new from 7s. 6d.

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CONNECTING Rods from 7s. 6d.

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EXHAUST Valves from 2s. 6d.

PULLEYS for any motor—

TRIUMPH, Brown, Fafnir, 4s. 9d.;

REX, Antoine; Kelecom, 5s. 9d.;

DE DION, M.M.C., 6s. 9d.

ABOVE 4½in. Diameter extra 9d.

AXLES, cranks, spindles, handle-bars, seat-pillars, or any other parts made to pattern or sketch at lowest prices; accuracy guaranteed.—Tufnell and Co., Lightning Motor Works, Leytonstone.

TANKS of all kinds made to order.—Doggett, metal worker, 65, Turnmill Street, London.

THE Best Silencer made is Aldington's patent Silent, from 10s. 6d.—Below.

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THE Rüsel Cast-iron Headed Valve, for any engine; 3s. 6d.—Below.

ODD Parts to Sketch or Pattern; moderate prices and prompt delivery.—Broadhurst, 13, Stafford Street, Leicester.

ADJUSTABLE Pulleys, 4½in., 8s.; 5in., 9s.—Lee, motor engineer, 18, Somerset Road, Edmonton.

SHEDS for Motor Cycles, 45s.; portable.—Stevens, 82a, Leighton Road, Kentish Town, London.

SHAMROCK 1in. Belt, new, 12s.; Dunlop and inner, 26 by 2, £1.—34, Great Hermitage Street, Wapping.

LOOK!—Bankrupt stock. Goggles, with case, 1s. post free.—Gasson, Government, Rye, Sussex.

6 h.p. De Dion Water-cooled Cylinder, perfect, no fittings; 30s.—Walker, Post Office, Canterbury.

LATHE, 5in. centre, back gear, slide rest, new condition; £6 10s.; exchange.—255, Earlsfield Road, S.W.

POWELL and Hanmer Acetylene Lamp; cost £1 1s., used twice; accept 10s. 6d.—Dr. Gervis, Seaford.

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Kindly note, we are special agents for the famous Shamrock all-rubber non-skid covers, also Goodrich and Palmer Cord. Deliveries of all sizes from stock.

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We allow 10/- for your old cover in part payment for any of the above. 5/- allowed for your old cover in part payment for any other make of tyre. Write for list 'B.' **NOTE!** Hella N.P. Searchlights, complete with large generator, **25/-.**

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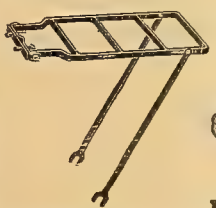

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BLACK Rubber Motor Jacket, overalls, cap; 30s. lot, or separate.—Micklebugh, draper, March.

MOTIPHOS to the motor man is a necessity. Any motorist will tell you that who has used it once.

MOTIPHOS not only increases the life of a driving belt, but so conditions it as to ensure it giving out full power all the time.

MOTIPHOS cures and prevents slipping clutches or fierce clutches, and keeps them to their proper consistency, because it "feeds the leather."

MOTIPHOS has made brakes effective which were previously useless.

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MOTIPHOS is sold in tubes by most dealers, or, if difficulty, send P.O. 1s. direct the Motiphos Co., 34, New Bridge Street, London, E.C.

OSBORNE Four-speed Gear, complete, 50s.; Autoclipse and generator, 30s.—Cooper, Hadley, Barnet.

COW-VOICED Double Twist Horns, large size, terrific noise; usually 8s. 6d., my price 5s. 10d.—Farrar.

FARRAR'S Motor Handle-bars, 20in. long, 4s. 9d.; Lycett's patent Lightning stand, 4s. 9d. pair.

FARRAR'S Beautifully Enamelled Mudguards, 2s. 6d. pair; massive plated horns, terrific noise, 3s. 9d.

FARRAR.—Send for my price list, pounds saved; sole agent Premier accumulators.—Farrar, Square Road, Halifax.

WHIPCORD Cycling Breeches, latest cut; 10s. 6d.; write for patterns.—Booth, tailor, Longton, Staffs.

FORECARRIAGE for Rex, or tricar, complete, dust jacket; cheap.—134, Highgate Road, Kentish Town.

FARRAR'S Quadrant Loop Frames for vertical engines, 32s. 6d. each, including front forks and handle-bars.

JOB Line.—17 feet lengths ⅜in. leather V belting, reliable, 10s.; ditto, ½in., 12s.—Pollin, belt maker Spalding.

RUST!—Killed immediately; polish follows; harmless; 7d. to Shaddick, 99, Montague Road, Leytonstone.

JACK-NO-SKID, new type now ready, light, strong, easily fitted, absolutely stops side-slip.—Horner's, Store Street, W.C.

JACK-NO-SKID, king of motor cycle non-skids, perfection as a jack; £2 2s., complete.—Horner's, Store Street, W.C.

JACK-NO-SKID gives greater security and convenience than any other motor cycle attachment.—Horner's, Store Street.

WATERPROOF Coats and Overalls; best value in trade.—Horner's, Store Street, W.C.

UP-TO-DATE Spring Fork Attachments; 10s. 6d., carriage paid.—E. A. Bray and Son, 134, Charlton Lane, Charlton, S.E.

BIG Demand.—Smart Whipcord Motor Cycling Breeches; 8s. 6d., post free; pattern.—Meredith's, Wearwell, Northwich.

BELT Rim Brakes, flexible cable, hand applied, easily fitted, stop anything; 8s. 6d., usual price 15s.—Slack's Garage, Stockport.

VALVE Lifters, complete with hand levers and flexible cable, easily fitted; 4s. 11d., usual price, 9s. 6d.—Slack's Garage, Stockport.

COACH-BUILT Body (all wood), no fittings, upholstered green, suitable for side or forecar; £1 1s.—13, Gaskins Mews, Pembury Road, N.E.

MABON Two-speed Gear, complete with starting handle, £4 15s.; Chapman two-speed gear, £2.—Wauchope's, 9, Shoe Lane, London, E.C.

BARKER'S Iron Cement for cracked cylinders, water jackets, etc.; stands great heat; 1s. tin saves pounds.—Oxford Road, Worthing.

27 Amp. Dinin Accumulators, new, 20s.; N.S.U. two-speed gear (fit twin), £3; Osborne four-speed (fit Rex), £2 15s.; Xl'all spring forks, 12s. 6d.; Brooks B100 saddle, 11s.; rubber belting, 9d. per foot.—Motor Exchange, Westgate, Halifax.

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WATER Circulating Pump, for 10-12 h.p. motor (new); £1 8s.

OIL Tank, with pump and oil gauge for dashboard (used once), plated, good as new; £1.

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BUCKET Seat, new, strong, light, highly finished, suit cycle or tricar; 25s.—Tuson, jun., Leominster.

MAUDE'S.—Six miles low and high tension wire, very best quality, high 9d., low 3½d. per yard.

MAUDE'S.—Best quality mica plugs, guaranteed, 2s.; rubber goggles, 1s. 6d. pair.

MAUDE'S.—2¾ h.p. Kelecom engine, £2 10s. to clear; Werner engine, 1¾ h.p., £2.—Maude's, Powell Street, Halifax.

CYCLE Maker's Turning Lathe, three speeds; cost £9 15s., £5, new condition. —218, London Road, Sheffield.

8FT. Whittle's ⅜in. belt, new, never used; 17s., or exchange non-skid tyre. — 26, Playfield Crescent, East Dulwich.

SPLENDID Wicker Body, smart finish, upholstered dark green, with cushion, new; 22s. 6d.—99, Benthal Road, Stoke Newington.

COILS, Chater-Lea, non-trembler, genuine bargains, 8s.; non-trembler twin Lacoste, 13s.—Amott, 32, The Grove, Vauxhall, London.

DRUID Spring Forks, new illustrated booklet now ready. It will interest you. Send for it to-day. — A. Drew, Conybere Street, Birmingham.

ONE Pair of Genuine Simplex adjustable spring fork attachments for motor cycle (brand new); 8s. 6d.—H.M., 22, Leghorn Road, Plumstead, S.E.

RUBBER Goggles, complete with extra glasses, 1s. 9½d. pair; extra heavy motor covers, 14s. 6d. each.—Anglo-Saxon Motor Co., 31, Newgate Street, E.C.

LOOK!—Bankrupt Stock, 4,000 splendid rubber motoring jackets, lined with blue serge; 10s. 6d.; carriage paid.—B. Dept., Gasson, Government, Rye, Sussex.

AUTOGENOUS Welding.—Have you fractured a costly casting? Don't swear! Send it along to the Alvaston Motors, Derby. Astonishing results.

AUTOGENOUS Welding.—Broken part absolutely re-united. Perfect strength. We save you pounds.

AUTOGENOUS Welding. — Cracked water jackets (no matter how bad), leaky cylinders, cracked valve seats, broken flanges, etc., all amenable to our process.

AUTOGENOUS Welding. — Quotation on sight. Send casting to-day.—Alvaston Motors, Derby.

GENUINE De Dion Coil, 8s.; frame, live axle, differential, £2 5s.; two-speed gear and free engine, by Henriot Freres, £2.—Bone, Craig-y-don, Llandudno.

BELTS, grooved rubber, latest, ⅜in. size, 6s.; ¾in. ditto, 7s. 6d.; ⅞in. ditto, 9s. 6d.; inch ditto 12s.; nothing better; send for sample.—138, City Road, Cardiff.

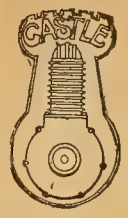
BARGAINS.—Fuller plain coil, 8s., perfect, cost 24s.; brand new Kerry accumulator, 15 amp., 7s.; 12 amp. Pfluger, 6s.—Williams, 89, Mitcham Road, Tooting.

MAGNETOS, Bosch type, runs on ball bearings, single-cylinder £2 17s. 6d., twins £3 10s.; guaranteed; instant delivery. —Maude's, Powell Street, Halifax.

7FT. 5in. by ¾in. Dermatine Belt, 4s. 6d. 75 mm. Kerry piston, gudgeon pin, and four bushes, 5s. 6d.; Guenet trembler coil, 8s. 6d.—31, Herongate Road, Manor Park.

VARIABLE Speed Pulleys made to suit any machine, variable pulleys with free engine clutch metal to metal, operated from handle-bars.—Particulars, E. Moorhouse and Co., 3, West Lane, Keighley.

BROWN-BARLOW Carburetter, latest, 21s.; Osborne free pulley, 17s. 6d.; 40 amp. accumulator, new, 17s. 6d.; 20 ampere armoured ditto, 17s. 6d.; trembler coil, 10s. 6d.; Millennium stand, 7s. 6d.; Price's stand, 5s. 6d.; Grack electric horn attachment, new, 10s. 6d.; twin trembler coil, car size, 21s.; engines and parts finished and castings; very cheap.—138, City Road, Cardiff.



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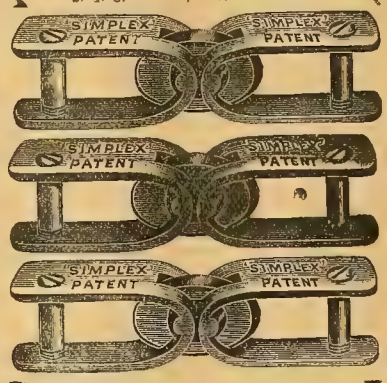

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MISCELLANEOUS.

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BOOTH.—Double-twist horns, deep tone, 4s. 9d.; large leather toolbags, 5s. 6d.

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BOOTH.—Six Accumulators, require slight repair; 1s. 9d. each.—Booth's Motor Exchange, Coronet Works, Wade Street, Halifax.

N.S.U. Two-speed Gear, new, £3 15s.; rubber belting, equal to any elsewhere obtainable; ¾in., 1s. 1d. foot; 1in., 1s. 6d. foot; sample sent.—Hodgson, 10, Horton Road, Bradford.

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MISCELLANEOUS.

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PULLEYS for any motor, De Dion, M.M.C., 6s. 9d.; Antoine, N.S.U., Kelecom, Rex, F.N., 5s. 9d.; Peugeot, Brown, 5s. 6d.; Triumph, Fafnir, Sarolea, Minerva, 4s. 9d.; plated, guaranteed; carriage paid.—J. Perkins, High Road, Leyton, London.

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MARVELLOUS Value. — Genuine stop watches, specially made to resist vibration of handle-bars, equal in appearance and timekeeping to watches costing as many guineas; send 10s. 6d. for sample, carriage paid.—S. Harris, 41, Albert Road, Stratford, E.

VARIABLE Pulleys, 8s. 6d.; improved variable puleys, 10s.; improved variable pulleys, fitted with free engine, metal-to-metal clutch, which can be slipped to any extent without injury, handle-bar control, price 50s.; repairs a speciality. — Smith, Peace, and Co., Trinity Works, Keighley.

LONDON Auto Co., Clapham, S.W., agents for Chater-Lea frames and fittings, and all makes of engines; No. 6 frames, £2 18s. 6d.; girder forks, 15s. 6d.; long handle-bars, 3s. 9d.; wheels, 30s. per pair; tanks from 12s.; low quotations for all other parts; illustrated frame and engine lists, stamp.

350 Government Gauntlet Gloves, all leather, 2s. 6d. pair; 600 Bedford cord riding breeches, 4s. 6d. and 5s. 6d. pair; 450 selected trousers, 3s. pair; 500 police oil-skin capes, 3s. 6d. and 4s. 6d. each; 60 officers' leather waist belts, with metal clasp, 1s. 3d. each; 400 leather leggings, 2s. pair.—Anscomb, 14, London Road, S.E.

GIVING up the Motor Cycle Trade.—Millennium carrier stands, 7s. 6d., usual price 20s.; Vim stand (starts like free engine), 6s. 3d., usual price 17s. 6d.; Phillips's brakes, 4s., usual price 10s. 6d.; Vim flexible cable brake, 5s. 6d., usual price 12s. 6d.; hand levers, and Bowden cables for valve lifters, 3s. 3d., usual price 7s. 6d.—Slack's Garage, Stockport.

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MISCELLANEOUS.

CASH Bargains.—Motor Cycle Covers, wired edge, 26 by 2, 2¼, and 2½, 11s. 6d. each; 28 by 2, 2¼, and 2½, 12s. 6d. each; beaded edge, 2s. extra; motor cycle tubes, with valves, 26 by 2, 2¼, 2½, and 28 by 2, 6s. 9d. each; Kerry tricar lamps, brass or plated, 12s. 6d. pair; plated ratchet control levers, 1s. 6d.; Whitley carburetters up to 4½ h.p., 13s. 6d.; large plated double-twist horns, 6s.; rubber goggles, 2s. 6d.; good quality V belting, ⅜in., ½in., and ⅝in., at 8d., 10d., and 1s. per foot; subject to being unsold; cash with order; approval.—Bastone, 217, Pentonville Road, King's Cross, London, N.

ABSOLUTE Clearance of Motor Cycle Goods.—Bensley and Dedman, 720, Holloway Road, must clear following goods: 3 h.p. Lurquin and Coudert motor cycle, in good running order, £9 10s.; new motor cycle tank, all compartments, 20s.; new brass petrol and oil tank, 20s.; two-speed gear, for belt drive, 15s.; new frame, complete, for inclined engine, 30s.; stands for motor cycles, 3s. each; ⅝in. belting, new, 1s. foot; Whitley carburetter, 12s. 6d.; pair N.S.U. handle-bars, plated, ⅞in. stem, 6s.; pair long handle-bars, 1in. stem, black, 5s. 6d.; non-trembler coil, perfect, 7s.; two-cylinder trembler coil, perfect, 30s.; 26 by 2½ wired-on cover, 8s. 6d.; 26 by 2¼ red tube, new, 8s. 6d.; 26 by 2 red tube, new, 8s. 6d.; Singer two-cylinder wipe commutator, new, 12s.; new bucket seat, 27s. 6d.; several silencers, 3s. and 4s. each; large front mud flaps, 6d. each; pair new tricar side lamps, 14s. 6d.; new 6 h.p. water circulating pumps, 15s. 6d.; 3 h.p. Ariel engine, w.c. head, £3; Sharpe's silencers, 10s.; Lucas No. 19 lamp brackets (soiled), 1s. 9d.; springs for front forks, 1s. 6d. each; security bolts, Palmer, 3d. each; tricar dashboard petrol tanks and oil pump, 22s.; new, free engine clutch, 15s.; 26 by 2in. beaded edge cover, new, 13s. 6d.; Vim brakes, motor cycle, 10s. each.

MISCELLANEOUS.

GENUINE Three Speeds Free Engine Pulleys, latest design, positive and reliable action; £2, complete, light, neat, durable, and most simple to fit.—New Nonpareil Motor Fittings, Ash Tree Road, Stirchley, Birmingham.

CHATER-LEA Genuine Frame, wheels, Clinchers, 26 by 2, brass tank, pedalling gear, etc., for inclined engine, 45s.; Clement spray carburetter, 4s. 6d.; Vindec pulley, new, 2s.; Quadrant, 2s.; Mabon clutch, 12s. 6d.; plain coil, 6s. 6d.; Bassee-Michel trembler, 7s. 6d.; long handle-bars, 2s.; separate generator, 1s. 9d.; Riche's tube, 26 by 2½, as new, unpunctured, 8s.—B. Hayden, 16, Rastell Avenue, Streatham Hill, London.

DE DION Engine, 80 by 80, water-cooled, complete with pump, carburetter, silencer, coil, perfect order, £12; 2¼ h.p. Werner engine, vertical, 25s.; F.N. carburetter, car size, new, 18s. 6d.; 15 h.p. Spyker carburetter, 25s.; two-speed gear box, suit ⅞in. belt, £2; Renault gear box, two speeds, 35s.; two-speed gear box, with expanding clutches, as new, £2 10s.; copper enclosed radiator, 30s.; tubular radiator, as new, 10s.; two-seated body, with wings, in nice order, 15s.; water circulating pump, 7s. 6d.; pair Bleriot acetylene headlights, splendid condition, £3; small acetylene headlight, 15s.—Moore and Haigh, 63, Kirkstall Road, Leeds.

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N.S.U. Motors (West London District Agency), latest pattern models in stock, two-speed gears, spare parts; liberal allowance for your motor in part exchange; deferred payments; trial runs by appointment.—Eagles and Co., High Street, Acton. Telephone, 556, Chiswick.

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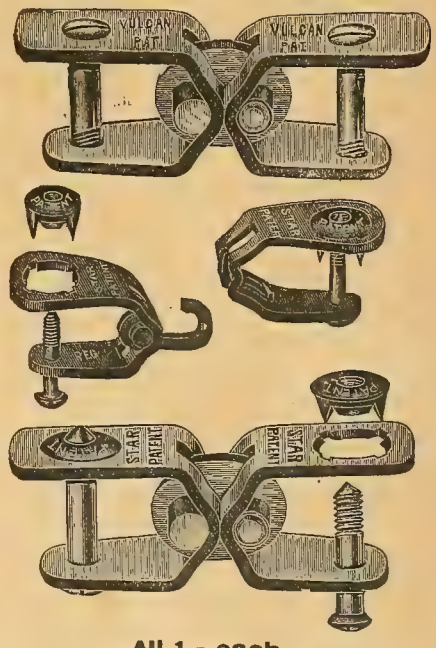

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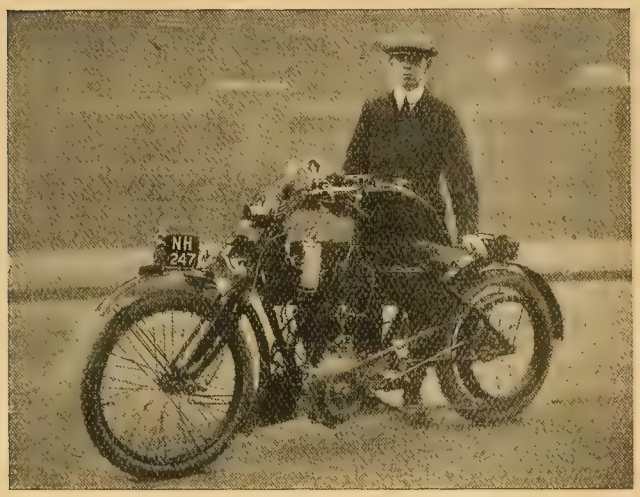
Arrived dead on time.

London to Coventry and Back.
Non-stop both ways.



COMFORT. RELIABILITY.
EASE OF CONTROL.

This is what the rider (an amateur) says.—

"I have got through both runs without any adjustment whatever."

This is what we say.—

"It does not require a professional rider to demonstrate the capabilities of **'Advance'** machines."

PRICE of 6 h.p. twin model, fitted with all the "Advance" refinements, ***48 GUINEAS.***

ADVANCE MOTOR MFG. CO., LTD., NORTHAMPTON.

TRANSFERS

For Motor Cycles, Tricars, Bicycles, etc.,

¶ **The machines you make or sell should carry a transfer of original design, which is a constant and lasting advertisement for you.**

¶ **If you will send us the wording and say whether you prefer gold only, or gold and colours, we will submit an original design to you FREE OF COST.**

OUR PRICES ARE LOW, BUT WE ARE UNSURPASSED FOR QUALITY.

Crests or Monograms a Speciality.

ILIFFE & SONS LIMITED,
Transfer Specialists, COVENTRY.

G. L. Carburetter

SPECIAL FEATURES:

1. THE WELL-KNOWN G.-L. SYSTEM OF CONTROL.
2. PATENTED ADJUSTABLE FLOAT.—(*a*) No more tinkering with the needle; adjusts petrol level by the mere turn of a thread. (*b*) Greatly increased sensitiveness owing to the patented shape.
3. NOVEL PATENTED THROTTLE.—Usual throttle lever gives: (*a*) Start without tickling. (*b*) Very fine graduation of opening (*c*) Perfect Vaporisation (*d*) Downhill running on fresh air only.
4. EXTREMELY ACCESSIBLE JET. Removed by unlocking one milled nut only.

No Moving Parts whatever, except throttle

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Byron House, 85, Fleet Street, LONDON, E.C.

THE MOTOR CYCLE

Vol. 6. No. 249. Jan. 1, 1908.

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Ten Years' Progress.

THE present issue of *The Motor Cycle* commences volume six, and as it is also dated January 1st, we seize this fitting opportunity of wishing our readers a Happy and Prosperous New Year. The wet summer of 1907 curtailed and rendered less enjoyable many tours undertaken last year, but two such summers seldom follow one another. We may, therefore, hope for and expect more favourable weather conditions for our favourite pastime during the next twelve months.

We are now about to witness a greatly increased activity in motor cycling. Everything points to it; even the daily press, so long antagonistic to anything bearing a semblance to a mechanically propelled bicycle or tricar, has acknowledged that there are huge possibilities for the handy motor bicycle. For this admission we are thankful. Nevertheless, we have, as our readers are aware, never wavered from a course decided on when motor cycles were ridiculed and disliked by the majority, viz., to support them with all our might. Those who know nothing of the pleasures of motor cycling have always been ready to throw cold water on it and to point to its slow advancement. But Rome was not built in a day. Have they ever thought of the time it has taken to bring pedal cycles to their present state of perfection? We think not. Roughly, since the introduction of the safety bicycle, the makers have had twenty years in which to experiment and evolve what is referred to by engineers as the most wonderful piece of mechanism of the age. The motor cycle in this country has had approximately half that time in which to develop. It is impossible to predict the improvements that may be made during the next ten years. As far as numbers go we can never hope to approach the pedal bicycle, because that insurmountable obstacle, price, will always keep the numbers smaller in comparison, but as both reduction in price and increase in manufacture move hand in hand, we may reasonably expect a great improvement in the number of motor cycles in use in the future.

The Tourist Trophy Race.

THE A.C.U. has provisionally fixed a date for the T.T. Race, but has not at present issued any regulations for this year's contest. There is, of course, a doubt as to whether the race will be held at all this year, principally because there is some uncertainty with regard to the 4in. T.T. Car Race. However, we do not see why the A.C.U. should not be able to carry out the motor cycle race, despite what decision may be arrived at in connection with cars. The costs of the arrangements in the Isle of Man are not heavy for the small circuit used for the motor cycle race, and, provided the necessary permission can be obtained, we hope to see it carried through whether the car race is held or not.

Reference to our correspondence columns will show that one firm of manufacturers of motor cycles at least is anxious to know when the regulations will be issued, so that their machines may be prepared at a time when they have a certain amount of leisure. Later on in the year they may be too busy to attend to such matters, and, in consequence, may decide not to compete. If one firm is in this position, doubtless there are others who are and will be similarly situated. It would therefore be of very great advantage to have the rules circulated as early as possible.

What Does the Lady Rider Want?

By Mrs. Edward Kennard.

SUPPOSING I could afford a new motor bicycle for another year, what would I like? Although the possessor of a 3 h.p. up-to-date Advance, fitted with spring forks, a spring seat-pillar, and a first-rate machine in every respect, I nevertheless found myself asking that question as the new year approached. Well designed as was my mount, rigid and reliable, it still presented the usual female bugbear, WEIGHT, spelt in large letters designedly. Whenever I approached a big firm and modestly hinted at my wishes and opinions regarding a suitable machine for my own sex, the manager invariably pointed out the unremunerative nature of the task proposed. It would not pay. They did not care to depart from their standard models, etc., etc. After much thought, I ultimately decided (mentally, be it understood, for the sinews of war were lacking for the moment) that a feminine rider required a 3 h.p. engine, fitted with a two-speed gear, a clutch for starting purposes, and a free engine. I set to work to make enquiries. The gears I fancied, and which had demonstrated their capacity and reliability in public, entailed the abolition of pedals. And for pedals I entertained a decided predilection, recalling many an occasion when they had served me in good stead. Several other gears proved free only in name, and consequently failed to solve the starting difficulty. No, my ideal bicycle should have pedals, and the rider should be able to mount from a standstill, and start the engine with a clutch lever close to her right hand, preferably on the handle-bar. But alas! a two-speed gear meant extra weight and complication. I was still pondering over the problems presented by the motor bicycle for women, and thinking how hard it was that men with their superior strength had only to pick and choose, whilst we poor women, with our feeble force, were expected to push and pedal inert mechanism weighing anything from a hundred and fifty to two hundred pounds, when Fate directed my wheel to the Clyde motor shop in Granby Street, Leicester. There I saw something which induced a complete *volte face*.

A Real Lightweight Bicycle.

That something was neither more nor less than a Motosacoche. A real bicycle, with a small 1¼ h.p. engine attached; not a fine, massive, powerful cylinder, framed round with tubes in the shape of an ordinary motor bicycle. My eye at once perceived the difference. The Motosacoche weighed seventy-five pounds. Its lightness, handiness, and simplicity were apparent to the veriest tyro. But was it a mere freak, as had been suggested to me? After following its career both abroad and at home, I scarcely believed this possible.

A day or two later, through the extreme courtesy of Mr. Wait, he allowed his representative, Mr. Farrer, to ride the Motosacoche from Leicester, in order to let me see what the little thing could do. We live on the slope of a hill about half a mile in length, and whose upper portion has a gradient of 1 in 10. Many a 3 h.p. bicycle have we seen jib at it. Imagine our surprise when the sturdy little engine buzzed quite merrily to the very top without the smallest assistance from the pedals! It was a marvellous performance. Then, by simply lifting the rod actuating the jockey pulley, the belt could be released in a second. How nice for traffic and tight corners! The machine was so light one could pedal it precisely like an ordinary bicycle. The control seemed the acme of simplicity. There were no levers in the ordinary sense of the word. An exhaust lever on the left handle-bar advanced the ignition to the full when dropped, and in conjunction with it was a small handle which actuated the throttle. The Motosacoche would crawl along at three miles an hour or speed away at thirty. Mr. Farrer assured me he could always maintain an average of twenty-two miles an hour. It flashed across my mind that here was the very thing for lady riders. A light, simple machine, easily mounted, easily pushed, easily pedalled. In fact, just what they wanted, and which would induce numbers to take to the fascinating pastime of motor cycling. But—Oh! those horrid buts—"they were not made for ladies, only for men." "Why not?" I persistently queried. "Oh! the difficulty," came the customary answer.

"Nonsense!" I ejaculated. "There is no such word as impossible. Impossible is a sign of dulldom, of want of intelligence and progressiveness. Any local cycle maker could build up a frame with tandem lugs and strong enough tubes to carry an engine attachment weighing only thirty-five pounds all told."

The Motor Cycle for Ladies.

In a short time, and if properly pushed, I believe the Motosacoche will boom as a lady's mount. I look forward to possessing one some day, if only to enjoy the day journeys of seventy to eighty miles I delight in taking, whenever able to indulge in a holiday. It would be interesting if riders of the Motosacoche would give their experiences in *The Motor Cycle*, and tell me if my opinion is correct as regards its value for lady cyclists. By doing so, they would confer a great favour on the small band of female enthusiasts, who labour under the disadvantage of physical weakness and mechanical weight.

The complete lady's Motosacoche at the Stanley Show was admired by all. If it fulfils all its claims, I predict for it a great and immediate success

What Does the Lady Rider Want?

among feminine votaries of the sport. It is what women want. A mount they can manipulate without male assistance; of moderate heaviness, and in case of a breakdown, with engine removed, as easy to pedal as a safety. Fitted with a three-speed gear hub, and with some light assistance, from what I personally saw of the wonderful little engine, it would take a very stiff hill indeed to bring it to a standstill.

The high tension magneto machine with which the Motosacoche is fitted will reduce ignition troubles to a minimum.

We have been so handicapped hitherto, that it would be indeed a joy to discover a machine thoroughly suited to the requirements of the average lady cyclist, who loves cycling, but who finds toiling up hills in the heat of the summer sun a somewhat arduous task. She could pay distant calls in the country without having to think "Shall I be able to get on again without assistance?" In short, she will be absolutely independent. And the greatest pleasure loses half of its enjoyment when one is robbed of one's independence. To those who have male companions willing to give a friendly push on occasions it does not so much signify; but many of us have either got to ride alone or not at all. To them I feel sure the Motosacoche will prove a boon and a blessing. Still, I would much like the opinions of riders of the machine.

SUR LA ROUTE. A DAY'S RUN OF 255 MILES.

IT recently fell to my lot to have to undertake a run of 235 miles in the twelve hours, and it was with much trepidation, but an outward show of confidence, that I left the North of England for a run to South Devon. It had been my original intention to leave home at 7 a.m., but the usual delays cut this down to 7.30. For such a journey it was necessary to lose not a moment, so when traffic and other road conditions gave me the opportunity I let my machine "go." My engine was in great form, and I arrived in Birmingham at 9.45, running straight through to Droitwich, where I took on board a gallon of Shell. Worcester I swept through, but got lost in Gloucester, and was miles outside on the wrong road before I found out my mistake. I returned and fairly flew on towards Bristol, where I again shipped petrol. Of all the vile towns to ride through, I fancy this town to be easily first, and I was thankful when I was safely outside. I had the End-to-end "strip map" in my pocket, and this advised me to go *viâ* Congresbury, and not Dundry, to Bridgwater. I, of course, took the wrong road, and came in for some severe hill work, which did not in the least trouble my little four-cylinder engine. I sped on to Bridgwater, doing fourteen miles at the average speed of—well, a little more than twenty miles an hour, the road being good and free from traffic. On arrival, I filled up with Carless spirit at the Bridgwater Motor Co.'s magnificent garage, and was agreeably surprised at the enormous difference in speed and power which this spirit gives. It is well worth the 1s. 7d. a gallon which I gave for it. This quantity carried me on to my destination in the near neighbourhood of Torquay, a distance from home of 255 miles, owing to my going astray at Gloucester.

A Satisfactory Performance.

Take it all round, I have excellent reason to be proud of the performance of my delightful bicycle. I arrived five minutes after my schedule time (7.0), in spite of the fact that I got lost, took a very severe road, and started half an hour late. I had no engine trouble, nor did I ever touch my tyres. Pump and tools remained untouched from first to last, and the tyres, as I write a week later, are still as firm as when they left; neither is there a scratch on either. The road is far from ideal—first the hills of Derbyshire, and lastly the rough lanes and hills of Devon—yet my petrol bill was only 3s. 4d. for the whole journey, for I had a gallon in my tank to start with. I appear to have had some luck, for a few days later a small screw came adrift in my high-tension distributer and has made a sorry mess of its interior. This, however, was discovered after the run when cleaning.

Pace versus Scenery.

Though pace was my primary object, it did not prevent me enjoying the rapid change of scenery, and particularly the lovely view of the Severn mouth before reaching Bristol. Somewhere between, I fancy, Taunton and Exeter, I passed a motor cyclist in difficulties, and if he is inclined to think hardly of the rider of the four-cylinder F.N. who flashed by, perhaps he will remember the circumstances. I fancy he was at work on the belt, and it is with much satisfaction that I recall the fact that I am free from belt and chain troubles, and, indeed, from any transmission worries whatever.

Much of the road was dull and uninteresting, and the dullest parts were, fortunately, best provided with a road of good surface.

Overheating.

During a run of 11¼ hours the engine never suffered from overheating in the least degree, and one cannot fail to notice the absence of engine friction on this machine. My engine will never pull well till it is quite hot, and I would never venture a stiff hill-climb with my engine anywhere approaching the cool stage, so a run of a few miles, as at Birdlip hill-climb, would be a huge benefit rather than the reverse. I must say that I do not believe in severe oiling as a remedy for overheating trouble. If I fear overheating in a hilly district, I never dose my engine with such stimulant, as it merely has the effect of choking it.

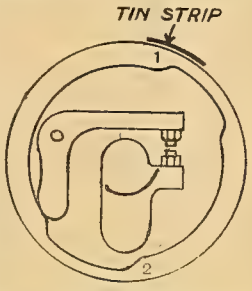
Buying Petrol on the Road.

On my long run I was only once offered petrol unsealed in a wretched dirty little green can, and was told that it was Shell. I refused it, and demanded a sealed can, upon which I was virtually told to go to the devil. I went one better and went to a garage, where I got what I wanted. I find it is not wise to go to the ironmonger or general-store petrol dealer, but to the garage owner or cycle repairer. My uncivil tradesman was an ironmonger, and I only broke my invariable rule in this case owing to the fact that I had barely half a pint left. I found a garage within a hundred yards and was content. The motor or cycle repairer is the person to go to, as it seems hard that he should be robbed of his little profit by a man who has other goods to sell.

BOUGIE.

A MAGNETO TIP.

IN the case of twin-cylinder engines having Simms-Bosch magneto ignition one sometimes finds after fitting a new fibre ring, and then testing the timing of the spark, that the ignition is more advanced in one cylinder than in the other. For the sake of illustration let us suppose that it is the rear cylinder (marked 1 on the fibre ring) which is retarded. It is, of course, possible to scrape or file the ring at 2 till the ignition is synchronised, but this may mean that the spark is then retarded on both cylinders. A way out of the difficulty is to cut a small piece of tin about ½in. long by ¼in. wide, and place this between the fibre ring and the gunmetal strap at 1, and then force the ring home into its proper position. The fibre ring is sufficiently flexible to allow of this, and bulges quite enough to produce a slight advance in the break at 1.



On magnetos which through wear have the slightest slackness in the armature spindle the break at 2 is generally greater than the break at 1, owing to the approach of the spindle towards 2 by the amount of wear in the bush. The distance between the platinum points when they break can generally be equalised by the above method, and the spark synchronised at the same time. This dodge might also prove useful in improving an old fibre ring when a new one was not at hand.

In the case of single-cylinders the timing difficulty does not exist to such an extent, as the spark can be slightly advanced by screwing in the platinum point on the bell crank and screwing out that on the contact piece. Care, of course, should be taken to see that neither of the platinum points is slack, and if so they should be packed with small washers of tin or sheet copper. This is sometimes quite effective in synchronising the spark on a twin, for if the break takes place at 2 and, say, a little after 1 for the rear cylinder, which I have supposed retarded, then the effect of thus altering the platinum points will be to advance the spark more on cylinder 1 than on 2, owing to the gradient of the cam curve being greater at 2 than a little after 1. I have assumed the marks 1 and 2 to be the correct positions of the rubbing end of the bell crank when the spark is taking place at the right point in cylinders 1 and 2. MAGNETO.

A COLD BATH.

It is rather entertaining,
When it's cold and wet and raining,
And the language you're restraining
Is becoming hard to bear,
When with clothes all wet and wringing
To your handles you are clinging,
With your motor ever dinging
Out its rhythm in your ear,
Just to take its cheery meter
For to make the journey sweeter
And to render time the fleeter
'Tis a very good idea,
And to rhyme all out of season,
Say good-bye to every reason,
Tell the weather it can freeze on
If it likes, as you don't care.

* * * * *

Pop! Pop! Pop! Pop! Pop! Pop! Pop! Pop!
Oh I wonder when I'll stop-op.
What's the good of Mother Hubbard,
With her bones inside her cupboard.
I'm as mad as any hatter—
Bless me! how my teeth do chatter!
Poor Jack Spratt could get no fatter
'Cause his wife would eat the platter.
Sure, this road's a muddy river—
Ugh! And how I qui-ui-uiver!
Mary had a little liver,
And Cock Robin killed the sparrow
With his borrowed bow and arrow;
Oh I hope he ate his marrow.
And I wonder if Jack Horner
Really had a plum or corn, or
Whether really Cinderella
Left her shoe or umb(e)rella;
If it's true shock-headed Peter
Tried to woo or tried to eat her;
If that blackguard Alpha beat her,
Or that giddy Gamma dealt her
Little digs about her belt? Ah!
Here's a hill; guess I'm mistaken
If I do not put the brake on,
Put the brake on, put the brake on,
Put the bally blighted brake on.

Oh my whiskers! What has happened?
Has the thing got jammed or flattened?
Sure it is I cannot shove it,
Love or money will not move it.
Then look sharp; turn off the motor;
Hurry up, you silly goat, or—
Curse! I can't! The lever's broken!
How I wish I'd never spoken.
Yes, that last one must have done it;
Why the blazes did I pun it!
Keep your nerve now—no use swearing
When the thing is past repairing.
Can't you see you'll have to risk it,
Steer for life or break your brisket!
Oh my dinner! How unwilling
Am I now I spent that shilling;
Though in truth I had my filling,
Now it serves to most remind me
Of "The girl I left behind me."
Can I clear that nasty corner
Straight ahead . . . . .
. . . . . I could have sworn a
Thousand pounds I'd never do it,
Yet my luck has brought me through it.
Brought me through it, yes, by thunder,
What is that, though, over yonder,
At the bottom by that pond? Ah!
Sheep! The things I least expected,
If they haven't just collected
In the road—a clear obstruction.
Silly things to court destruction!
But as sure as they'll be mutton
My poor life's not worth a button.
Either they must act as buffer,
Else it means the pond, you duffer!
Woolly sheep and instant slaughter—
Either that or slimy water!
Choose! Make haste! No hesitation!
Which best suits your inclination?
Oh then—since it's life or leave me,
Let the duck-pond there receive me!
Nearer yet! I'm right agin it!
Mercy! Save us! Splash! I'm in it!!

—H. C. L.

POLICE LAST ACTION
TO TIRAD YE MOTOR CYCLIE
1) BUY YE LE YOUNG ORNITH... MAE FROM YE TRAILE...
2) WHEN YE ORYTHORNOS BE TRAMED AND GE... UP RIGHT FOR ALL, TAKE YE NIM TO YE STEEP HILL MUCH FREQUE... TED BY YE MOTOR CYCLIST.
3) WHEN YE MOTOR CYCLIST BEGIN TO TOY OF YE HILL LET LOOSE YE ORNITHORNOS AND SO TERRIFY YE MOTOR CYCLIST THAT HE EXCEEDETH YE SPEED LIMIT
YE BENK
4) THEN STOP YE YE MOTOR CYCLIST AND TAKE HIM INTO SAFE CUSTODY
5) TAKE YE MOTOR CYCLIST BEFORE YE BEAK
6) YE BEAK SHALL THEN FINE YE MOTOR CYCLIST ... AND PROMPTION SHALL THEN ... YE CONSTABLE.

Motor Cycle Records, 1907.

Specially compiled for "The Motor Cycle" by J. Sinclair.

CONTINENTAL motor cyclists seem to have left record-breaking severely alone during the past year—in fact, there are no new figures to chronicle. Such cracks as Giuppone, Cissac, Thomas, etc., are now devoting a great deal of their time to voiturette racing, and have been very successful. The world's records for the various types are, of course, very stiff—in fact, Giuppone's hour distance of 63 miles 1,078 yards set up a couple of years ago looks like remaining on the books for some time to come. At home further improvements have been made, the chief honours resting with that clever and reliable rider C. R. Collier, whose new British hour record of 56 miles 607 yards compares very favourably with the world's best, taking tracks into consideration. But all the same, it would be very interesting to see either he or George Barnes essaying new figures at the Parc des Princes track, Paris. Thanks to the courtesy of the secretary of the Auto Cycle Union, who keeps one of the most up-to-date record ledgers, I am able this year to introduce a list of the bests on record for motor cycles with a bore and stroke of 76 × 76 mm. In this class Collier also comes out on top, his flying start mile in 1m. 2s. being a world's track record for any type of machine, while his 51 miles 540 yards in the hour is an improvement of close on four miles on the best for 1906. If the new 20 h.p. British racers answer all expectations, it is more than likely that many new figures will be set up this year. Below is appended a table of the various records at home and abroad, which, being the only one published, should serve as a useful reference to followers of motor cycle speed work:

British Records for Motor Bicycles with a bore and stroke of 76 × 76 mm., or equivalent.

Distance	Time.	Holder.	Track.	Date.
mls.	m. s.			
1 fs.	1 2	C. R. Collier	Canning Town	Aug. 10, '07
2	2 17⅕	J. Perkins	,,	July 14, '06
3	3 27⅖	,,	,,	,,
4	4 37⅕	,,	,,	,,
5	5 47⅗	,,	,,	,,
1 ss.	1 16⅕	C. E. Bennett	,,	Aug. 10, '07
5	5 40⅖	,,	,,	,,
10	11 24⅖	,,	,,	,,
20	22 58	,,	,,	,,
30	35 32⅖	,,	,,	,,
40	47 12⅕	C. R. Collier	,,	July 13, '07
50	58 31⅖	,,	,,	,,
hour	mls. yds.			
1	51 540	C. R. Collier	Canning Town	July 13, '07

BRITISH RECORDS.

Distance	Time.	Holder.	Track.	Date.
Kilos.	h. m. s.			
1fs.	†25⅗	H. Cissac	Blackpool	July 27, '05
1ss.	†35	,,	,,	,,
mls.				
1fs.	†46⅕	H. Rignold	Brighton	,, 20, '05
1fs.	57⅓	C. R. Collier	Canning Town	June 4, '06
5fs.	†4 58⅗	G. A. Barnes	,,	July 14, '06
1ss.	†50⅕	H. Cissac	Blackpool	,, 27, '05
2	†2 5⅘	C. R. Collier	Canning Town	June 4, '06
3	†3 5	,,	,,	,,
4	†4 8⅗	,,	,,	April 16, '06
5	†5 12	,,	,,	,,
10	†10 33	,,	,,	,,
20	†21 16⅘	,,	,,	Oct. 11, '06
30	†31 54⅓	,,	,,	,,
40	†42 37⅕	,,	,,	,,
50	†53 20	,,	,,	,,
60	†1 11 28⅗	H. A. Collier	,,	June 27, '06
70	†1 23 12⅔	,,	,,	,,
80	†1 34 56⅗	,,	,,	,,
90	†1 50 59⅓	,,	,,	,,
100	†2 2 19	,,	,,	,,
150	†3 25 45⅗	H. Martin	,,	Sept. 13, '06
200	†5 4 12⅘	,,	,,	,,
hrs.	mls. yds.			
1	56 607	C. R. Collier	Canning Town	Sept. 7, '07
2	†97 1640	H. A. Collier	,,	June 27, '06
3	†129 464	H. Martin	,,	Sept. 13, '06
4	†169	,,	,,	,,
5	†199	,,	,,	,,
6	†228 250	F. W. Chase	Crystal Palace	Nov. 18, '02

CONTINENTAL RECORDS.

Distance	English Equivalent	Time.	Holder.	Track.	Date.
Kilos.	Mls. yds.	m. s.			
1fs.	1093⅔	25⅕	J. Giuppone	Ostend	July 14, '06
1fs.	1093⅔	27⅘	H. Cissac	Gaillon Hill-climb	Oct. 28, '06
mls.	kils. metres				
1fs.	1 609	56⅗	A. Anzani	Vel. d'Hiver	Dec. 23, '06
1ss.	1 609	53⅕	H. Cissac	Dourdan	Oct. 8, '05
kilos.	mls. yds.				
5fs.	3 188⅓	†2 45⅕	J. Giuppone	Salon Road	Sept. 18, '06
10fs.	6 376⅔	†5 49⅖	,,	Parc des Princes	Sept. 2, '06
10ss.	6 376⅔	†5 34⅘	,,	,,	Dec. 9, '05
20	12 753⅕	†11 21⅗	,,	,,	,,
30	18 1130	†17 14	,,	,,	,,
40	24 1506⅔	†23 8⅖	,,	,,	,,
50	31 123⅓	†29 1⅗	,,	,,	,,
60	37 500	†34 57⅕	,,	,,	,,
70	43 87[illegible]	†40 54⅕	,,	,,	,,
80	49 1253⅓	†46 51⅕	,,	,,	,,
90	55 1630	†52 45⅗	,,	,,	,,
100	62 246⅔	†58 38⅕	,,	,,	,,
hrs.	mls. yds.	kils. m.			
1	†63 1078	102 368	J. Giuppone	Princes (Paris)	Dec. 9, '05
2	77 754	124 600	A. Anzani	,,	July 13, '03
3	114 1326	184 666	,,	,,	,,
4	146 1364	236 200	,,	,,	,,
5	184 636	296 666	,,	,,	,,
6	220 529	354 430	,,	,,	,,
12	434 425	698 900	,,	,,	,,
*1	56 1685	91 665	R. Thomas	,,	Mar. 10, '06
‡1	59 801	94 73	A. Pernette	,,	,,

* Third of a litre. † World's record. ‡ Under 110 lbs. fs. Flying start. ss. Standing start.

Variable Gears for Motor Bicycles.

(Continued from page 1032.)

THE DISCUSSION.*

Mr. B. Chatterton was sure the Club greatly enjoyed the paper. They recognised in the reader of the paper not only a very enterprising manufacturer, but a very good sportsman. He was also the introducer of a speed gear that is a great practical success. On behalf of the members he congratulated Mr. Hooydonk on his efforts in that direction, and hoped in time to come he would be able to state the problem of variable gears more completely, and give the benefit of his further experiences and experiments. In criticising the paper he did so with great diffidence, knowing the great amount of experimentation and thought Mr. Hooydonk had brought to bear upon the subject. He noticed Mr. Hooydonk was very happy in regard to his own gear. He (the speaker) had been trying to imagine what were "the tiddlers" and what were the big fish referred to in the paper, and he had come to the conclusion that motor cars were the big fish and motor cycles were represented by the humble tiddlers; and Mr. Hooydonk considered the sport these afforded much more interesting than that to be got from the big fish. Then the lecturer had alluded to the question of overheating of motors. There was a general impression that if a speed gear was put on a motor cycle the engine would become overheated. His own view was that when the engine was working at full load the combustion of petrol in the cylinder was so atrociously bad that when there was a full charge of mixture there was so much left behind in the exhaust and in the clearance spaces of the engine that the incoming charge was heated more than it ought to be. The engine could be run at high speed if the charge was light. As to the loss of power in the use of bevel gears he did not agree with Mr. Hooydonk; he did not think they were worse than any other kind of transmission of power. You could not exercise force in any direction without reaction. There was reaction in bevel gears, but it was no greater than in plain gears. Belts have tension in them, and power is lost there in transmission. After all, the proof of the pudding was in the eating, and bevel gears worked extremely well if well made. But the difficulty was they were costly to make, and if not well made soon got out of alignment, and absorbed a great deal of power.

Power Absorbed by Tooth Gears.

In a recent number of the R.A.C. *Journal* Mr. Humphris's paper appeared, and a good deal was said therein about the power which tooth gears absorb. His own opinion was that the tooth gear was an exceedingly good one for a motor bicycle. Mr. Hooydonk had come to the conclusion that a speed gear ought to be put in the hub of the rear wheel. That would involve considerable additional weight, and if you want a bicycle that is suitable for a small motor you must keep the weight down. Mr. Hooydonk had alluded to the fact that a change-speed gear on the engine-shaft can be run with a high number of revolutions, and consequently a light one could be used; but because that involved some difficulty in manufacture, and some education was needed on the part of the manufacturers, he put that aside as impracticable. The fact that this might be the means of solving the question, and be better than a heavy speed gear placed in the hub, was worthy of more consideration. He had been riding a motor tricycle, and had been very desirous of applying a two-speed gear to it, and he turned to the exhibition of three-speed gears for bicycles at the Stanley Show. He came to the conclusion that it would be worth while to make an experiment, which he was now carrying out on his tricycle.

Mr. A. Pemberton said his experience of two-speed gears had been very limited, not so much as he would like. For the last three or four years he had ridden his "Antediluvian reptile," which had a 2¾ h.p. engine and surface carburetter. True, he had experimented with two-speed gears, but he still stuck to his own crude gear, which he described in detail. The operation of changing the gear necessitated dismounting, but it only took a few minutes to do it. The gear was reduced from 5½ to 1 to 7½ to 1. He had not found many hills too much for him. There was great need for some firm to supply a good two-speed gear. Personally, he thought two speeds were not enough, but three or even four speeds would be better for climbing steep hills. When a bicycle was run on a low gear the heat was dissipated as fast as it was made. When it got hot, that was a sign the machine was overloaded. With a low gear it is easy to keep on taking the hills, even the steep ones that are to be met with in Devonshire. With all the two-speed gears now on the market he had been looking round the shows to see if he could get something to put on his own machine. Some of them were great ponderosities of 50 lbs. in weight. That was not the kind of thing that was wanted, but a three-speed gear hub that could be manipulated even by stupid people. The pinions should be of good steel. The place to put the clutch, he considered, was on the engine-shaft, not in the back hub, and it should be operated by twisting the handle and not by grasping a lever. The latter practically necessitated taking one hand off the bar.

A Suggested Gear for Motor Cycles.

Mr. Lyons Sampson regarded Mr. Hooydonk's paper as an interesting one from many points of view, and it would have been more so if a model or drawing had been exhibited of his arrangement. It was not easy to picture it to the mind from a mere verbal description. Mr. Hooydonk was down on pedals; cars (he said) had no pedals. But, in the early days almost all cars had pedals, for the riders had frequently to get out and push up hill. As regarded the number of speeds he took it that two speeds were better than one, three would be better than two, and four would be better than three. With regard to the Humphris gear, which one speaker had mentioned, he thought it was one that might be readily applied to the motor bicycle, as a change of five or six speeds could readily be got from it, and it was simple in construction. He had used a car with this gear upon it, and it certainly worked very nicely. It did away with the gear box altogether where the drive was by cardan-shaft. The perforated disc was on the back axle, and you got a large number of speeds in a very direct and simple way. It had not been applied to motor bicycles, but it seemed to be one that could be very readily and cheaply applied. He did not quite follow Mr. Hooydonk's argument about the use of ball bearings to take end pressure. As he understood the matter when the pressure went to the balls they knew how to dispose of it, and he thought ball bearings a very good method of disposing of end pressure. As to bevel gear, Mr. Hooydonk had not been very complimentary. He thought, personally, that bevel gear was a very satisfactory way of obtaining that motion at right angles. Bevel gears had had a bad name because until lately there was no method of cutting them properly, but now, with properly formed teeth, the bevel gear occupied the position it ought to have as a means of transmitting power. He thought the bevel wheel was

* Summary of a discussion following a paper read by Mr. J. Van Hooydonk before the members of the A.C.U. at 119, Piccadilly, W., on Friday, December 20th.

Variable Gears for Motor Bicycles.—

better than a spur wheel, because it worked with less friction, being made larger. The larger the wheel the better shape you could get the teeth, and the less friction it would work with. A bevel gear was really part of a much larger wheel. On a bevel wheel much better teeth can be got than on a spur wheel of the same size.

The Adjustable Pulley.

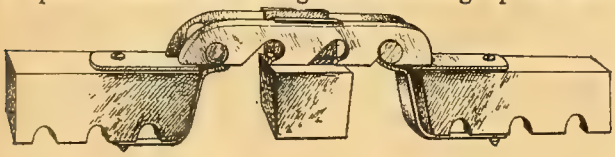
Mr. W. H. Wells said he was not enthusiastic over change speed gears for motor bicycles. For his own personal use, he preferred a high-powered machine with pedals. He fitted an adjustable pulley to one of his machines in the six days' trials, and did not require two belts, but had one belt throughout. He altered his adjustable pulley once or twice during the trials, and it enabled him to change from four to one to five to one. With a four to one gear he ran very comfortably over fairly level roads, but if he had not had that adjustable pulley he would probably not have made good time up Birdlip Hill. The other alternative would have been to have used a lower gear than he would care to have used on the level roads. An adjustable pulley with a high-powered engine gave a man all that was required, unless he was different from himself, not very active, and possibly wanted to use a sidecar. Someone had suggested that the engine shaft was not the proper place to put the variable gear. He quite agreed. The average engine in use at the present time was never designed or built to carry 8 or 10 lbs. extra weight. He had seen several engine shafts broken from having two-speed gears fitted to them, and then people said the engine was not properly built. The engine was not designed for that. If a two-speed gear is required, he considered the back hub was the proper place for it. And the simplest form it could have was that which Mr. Hooydonk had referred to towards the close of his paper. That is an ordinary hub of the ball bearing pattern, to which is fixed an epicyclic reducing gear; in other words, the ordinary differential gear. There were two types of gear of this description—one bevel and the other spur. If the bevel gear was used, there was bound to be a certain amount of end thrust, which had to be absorbed by ball bearings. The objection to this gear was that when taken apart it was nearly a day's work to put it together again. If the spur gear was used the end thrust was obviated, and it was only necessary to have certain bushings or bearings for each moving part in order to have a good practical gear. A difficulty comes in here, because the parts, in order to stand the wear, have to be made heavy, which was a serious objection. It was for that very reason he did not use it himself; nor would he use it, because he did not believe in adding 14 or 15 lbs. to the weight of his bicycle when he could do without it. But if anybody could ever devise a change-speed gear on that principle which would not add superfluous weight to the machine, it would be welcomed, and he for one would be very glad to help to push the sale of it.

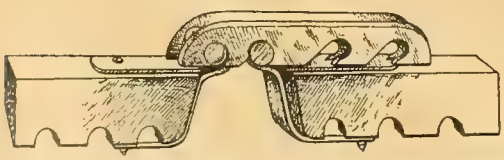
Mr. Victor Hart said he looked upon two-speed gears for motor bicycles as absolutely essential. He had ridden a 1¾ h.p. De Dion engine without any speed gear. As to the standard motor bicycle of to-day he would have nothing to do with it, for if he got stranded on the slightest incline he had not the strength to start it again. He would not subject his heart to the strain that was necessary to get going again. He wanted a machine that could be started from the handle and that would run as slowly as you wished without stopping altogether. He did not want to have to dismount in traffic and walk beside and push along his mount. He would like to get on it and sail away as gently as on a car. He did not know any motor bicycle on the market that would do that. What he was after was a lighter machine than was now obtainable, with a very much lighter hub gear. Mr. Wells had contended for high power. On the other hand, he himself contended for moderate power, but with a two-speed gear. He was not after speed up hills, he was after what the average man wants—to go at a comfortable pace on the level and to climb all hills without getting off his machine. He was interested in Mr. Chatterton's experiment, or proposed experiment, of utilising pedal gear for motor bicycles. He would be interested to hear what happens to the gear when the power was put on. He was with Mr. Hooydonk in his suggestion that the motor bicycle and the gear must be one. We did not want detachable gears, or gears made to fit the bicycle. None of the devices he had seen for fitting to existing machines were at all satisfactory; either they were too heavy, or there was some objectionable means of altering the gear, or of restricting control of the machine, so that he would rather be without them. He did try to fit a gear to a motor bicycle of his own, but was sorry he spent the money. It was a failure. In respect to bevel wheels *versus* spur wheels, he thought the former were much better made now than formerly. The fault, of course, was that when the bevel wheel began to wear it was almost worse than the most badly worn spur wheel; the loss of power was tremendous, and the noise very great. He was one of those who believed that chains would come into use. The Phelon and Moore gear was chain driven so far as transmission from the engine to the back axle was concerned. That gear had given trouble at first, but it worked admirably and gave satisfaction now. The chains should be encased in an oil bath.

(To be continued.)

AN ADJUSTABLE BELT FASTENER.

WITH the increasing use of adjustable engine pulleys a want has been felt for some device for immediately taking up the slack of the belt when the pulley is expanded to give a low gear. Some riders carry short pieces of belt or a spare fastener for letting out or taking up the belt





length, others carry a spare belt; but these alterations take time. To enable the belt tension to be adjusted instantly, H. Collier and Sons, Herbert Road, Plumstead, have introduced a novel type of fastener, which we illustrate herewith. The first drawing shows the fastener with the normal adjustment. In this case there is a space of 2in. between the ends of the belt, and to prevent too great a loss of grip on the engine pulley a small section of belt attached to a metal holder is slid between the parallel sides of the fastener. In the second drawing the belt is shown shortened for use with a low gear. The intermediate position can be clearly seen. For constant use with an adjustable pulley a device such is this becomes almost a necessity, and if it will keep fastened and the top of the fastener does not foul the back stay as the belt passes over the belt rim it is likely to be in great demand.

In his article entitled "Single-geared Motor Bicycles at the Stanley Show," Mr. B. H. Davies warned motor cyclists that spring frames are fatal to the proper running of most sidecars. The Bat Motor Mfg. Co. ask us to point out that this cannot possibly apply to the Bat spring frames, as the frame proper is perfectly rigid and the rider only suspended. Any standard make of sidecar can be fitted to the Bat motor bicycle without detrimental effect.

TRIUMPH

Have you ever experienced that delightful sense of security—that perfect belief in the mount you are riding—to feel at the start of a 50 mile run there will be no mechanical troubles to upset your arrangements—no temporary breakdown, however trivial, to mar your pleasure.

If this has not been your experience, you have missed many of the pleasures of motor cycling.

But there is no need to go on missing them.

There's an antidote for unsatisfactory motor cycling, and it lies in the world famous TRIUMPH, which never fails to give unqualified satisfaction to its riders.

Many riders call it the "No Worry Machine," which is a very true definition.

It is designed and constructed to give absolutely reliable road service, and it never fails.

May we send you particulars?

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ITS FINISH,
DESIGN,
WORKMANSHIP,
WITH OTHERS!

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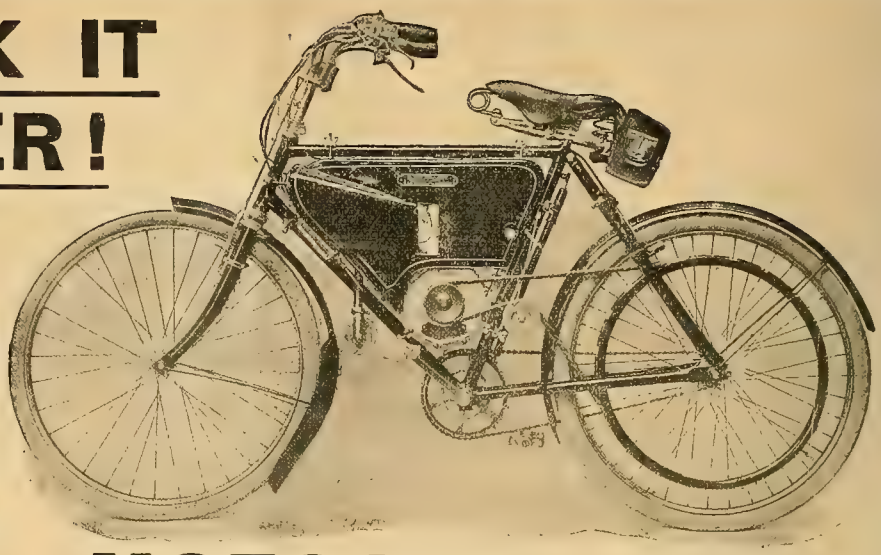
HOW SILENTLY
IT WORKS!
HOW STRONGLY
IT IS MADE!

TEST

ITS RUNNING
YOURSELF!
ITS MERITS
PERSONALLY!



MOTOSACOCHE.

TO SEE A "MOTOSACOCHE" IS TO LIKE IT!
IF YOU LIKE IT—HAVE A TRIAL RUN.
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All our new 1908 models are now on view, and trial runs can be at once arranged. These include both ladies' and gentlemen's mounts of 1, 1¾, 2 and 2¼ h.p., both single and double cylinders, with accumulator or magneto ignition. Call at our headquarters, or send for our lists and catalogues. The "MOTOSACOCHE" suits everyone's purpose, and is the model motor cycle for 1908. Light, handsome, reliable, speedy and economical—It is the embodiment of motor cycle perfection.

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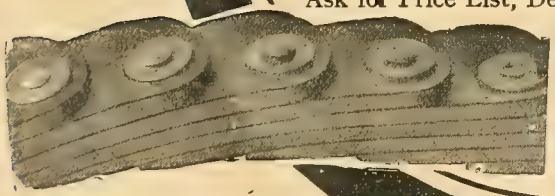
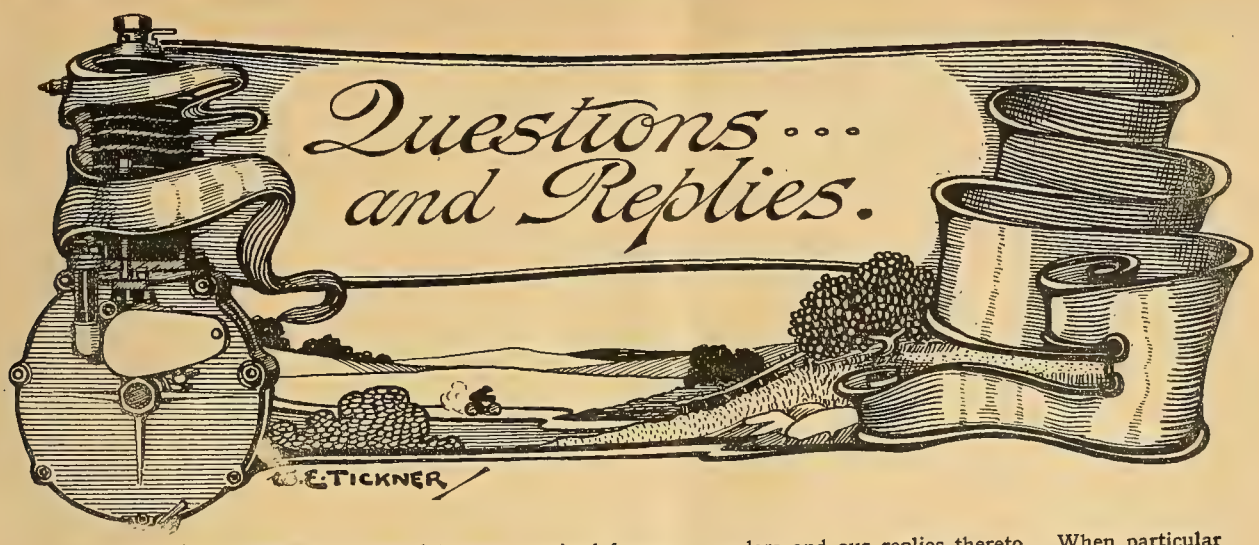


The "Stratex" Motor Belt.

The Brooks Non-skid.



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

A New Cover.

Will you be good enough to favour me by return of post with the name and address of the makers of the Kempshall outer cover for motor cycles, as we have an enquiry for same and cannot trace any advertisement in your paper?—D.T., Ferndale.

The address you require is the Kempshall Tyre Co., 1-2, Queen Street, Cheapside, E.C. We are informed the firm are experimenting with the tyre for use on motor cycles.

Charge Accumulators Regularly.

A week or two ago you mentioned that accumulators should be kept regularly charged once a month whether in use or not. I had one charged three weeks ago, and it still shows about the same on the voltmeter (4.3). Is it necessary to have it charged again, seeing it does not seem to have run down? Also, I should be pleased to know what the composition of the paste is which is fixed in the grids? Is it possible, say you had the plate out to wash, etc., to put new paste in where it has dropped out? I am wanting a new 20 a.h. accumulator. What make would you prefer?—L.A.F., Leeds.

Yes, the accumulator in question should be put in circuit for a few hours in about a week's time, even if the voltage has not dropped. The positive plate is composed of peroxide of lead mixed with sulphuric acid, and the negative of lead. Accumulator manufacturers, however, generally have secret compositions known only to themselves. It is possible for you to put in the paste yourself, but it is not advisable. It is much better to get this done by an accumulator maker. Regarding the new accumulator, send us a list of different makes of accumulators and number them, and we will then place them in order of merit.

A Beginner's Queries.

Will you kindly advise me as to the following: (1.) Which is the best machine for an amateur to start motor cycling with, a new one or a second-hand machine? (2.) What power would you advise for moderate hills? (3.) What sort of machine could I get for £15 (say 2 to 3 h.p.)? and what would be the average cost per 100 miles?—S.H.A.

(1.) After a few rides on a hired machine you will be able to manage quite well any new pattern single-cylinder mount. (2.) Anything between 1¼ and 3½ h.p., depending on your weight. (3.) A very fair machine of about 2 or 2½ h.p. can be bought for the price you name. The cost of running would be about 1s. 6d. to 2s. per hundred miles.

Regarding Lightweight Machines.

(1.) I ride a 1¾ h.p. F.N. Lightweight. There is a tiny hole in the bottom of spray chamber of F.N. carburetter, irrespective of cleaning holes for jet and petrol channels. Should this be so, or is it a flaw in casting? (2.) I have put some Price's gear grease in the geared pulley, but when the pulley gets hot the grease melts and runs out over the belt, causing it to slip very much. Will it hurt the gear if I clear this all out and rely only on engine lubrication? It makes rather a noise run this way. The machine is almost new, having run under 200 miles. (3.) Should the exhaust valve lifter lift the exhaust valve sufficiently to clear the cam on 2 to 1 gear? Mine does not.—F.R.G., Croydon.

(1.) The hole is probably an outlet, so that any excess of petrol in the spray chamber may escape. (2.) We should advise you to put less grease in and to lubricate more frequently. (3.) As long as the exhaust valve lifter releases the compression it does its work all right.

Charging with One Lamp.

Please inform me if I can recharge accumulators from one lamp on a circuit? In "Motor Cycles and How to Manage Them" it states, use a switch controlling three lamps, but all our lamps have a separate switch to each lamp. Can I use these, and what do I require to purchase before I can start recharging?—Y 464.

It depends on the candle-power of the lamps and the voltage of the circuit. Yes, one lamp may be used, but you will charge more slowly than if you had several lamps in circuit. One 16 c.p. lamp on a 100 volt circuit will pass about half an ampère, so that if your accumulator should be charged at one and a half ampères, it will take three times as long to charge it through one lamp as it does through three lamps of the same capacity.

Carburetter Leaking.

(1.) I have broken part of the case of the spraying chamber of my Longuemare carburetter, including a portion of upper flange. As this prevents my getting the full benefit of the hot air jacket, I should be obliged if you would tell me where I can get a new case or get present one repaired? (2.) The above carburetter floods very badly, and although I have tried weighting needle and grinding same I get no improvement. Can you advise me? (3.) Is it possible for speed of engine to increase on closing the silencer cut-out?—L.R.

(1.) You can get new parts for the Longuemare carburetter from Brown Bros., Ltd., 15, Newman Street, Oxford Street, W. (2.) We should like to refer you to the articles on carburetter adjustment which appeared in *The Motor Cycle* of May 1st and May 8th, 1907. (3.) Yes, it is quite possible, and has been known to be actually the case. It depends on position of cut-out and type of silencer.

A Tricar for Hilly Roads.

Having read an article about two months ago in *The Motor Cycle* about the 3½ h.p. water-cooled Fafnir engine two-speed Raleighette tricar, I should be glad if you would answer the following: (1.) Would it climb our Cornish hills with twenty stones up? If so, at what speed? (2.) How many miles per hour would it average, say going from North to West Cornwall? (3.) Petrol consumption, miles to the gallon? (4.) What would be a reasonable price to give for a second-hand 3½ h.p. water-cooled Raleighette tricar from three to four years old in fair condition? I have a 3½ h.p. Rex motor cycle at present, but want a passenger machine as near the cost of upkeep of a motor bicycle as possible. I have tried a sidecar on my motor cycle, which is geared 4½ to 1, and then cannot get up all the hills with car empty. Do you think a 3½ h.p. Raleighette would be suitable for this part of the country, or would you advise one of higher horse-power?—AF 161.

(1.) The machine in question would take hills of 1 in 8 on the low gear with driver and passenger about twenty stones. (2.) About eighteen or twenty miles an hour. (3.) About sixty or seventy miles to the gallon. (4.) About £40. Yes, a 3½ h.p. Raleighette would be a good investment, but the 6 h.p. tricar of the same make would suit you better, as the country in your neighbourhood is so hilly.

Improving a Low-powered Tricar.

I should be glad if you could tell me how to improve the running of an engine which I have on a light tricar. It has a 3in. bore and 3in. stroke, with a gear of 5½ to 1. Is this about right? Would the engine be a 3 h.p.? Could you tell me what weight is required to open the exhaust valve and automatic inlet valve? I thought the springs may have lost their tension. I had new piston rings some time back, and they seem to have worn in very well; compression is good. I tried engine on stand with a speed indicator and it ran at 1,800 revolutions a minute. Would an automatic air valve between carburetter and inlet valve improve matters? It does not misfire at all, wipe contact with trembler coil, Longuemare carburetter, 6 spray, 16 air cone. The engine does not seem so powerful as it used to be.—T.H.S., Coventry.

The horse-power of the engine is about 2¾, which is exceedingly small for tricar work. You can test the tension of the exhaust spring by feeling it, and if it requires a very great effort to lift the valve by hand against the compression of the spring the tension is about right. For high speed work a fairly strong inlet valve spring is advisable; for slow running a slack spring is best. What we should advise you to do is to experiment with inlet valve springs of various strengths, and see which gives the best results. You can increase the engine's revolutions by fitting a make and break contact and good non-trembler coil. We should not advise an automatic air valve but a small tap, such as a compression tap, above the throttle, which you could open full when running at high speeds. This would be more satisfactory than an automatic valve.

Misfiring at High Speed.

Would you kindly tell me if you know of any spring forks on the market which will not interfere with a front Bowden brake? My machine is a 3½ h.p. Centaur. (1.) The valves on my machine make a sharp snapping noise, even when the bicycle is being wheeled slowly. The noise occurs just after the tappets have been lifted to their full height, and are beginning to come down again. Do you think a new set of timing pinions would improve matters? (2.) When going fast the engine misfires repeatedly. Is this due to the wipe and trembler ignition? as most machines with make and break can romp away from me on the level, while I can romp away from them on any hill.—G.M., Newcastle.

The Druid spring forks can be used, and a front brake retained. (1.) The noise is due to strong springs and sharp cams which cause the valves to close quickly. (2.) It may be due to the adjustment of trembler, or to the carburetter not receiving sufficient air at high speeds. We should be inclined to think your machine is slightly under-geared for your weight.

Fitting Two Ignitions.

I desire to have two systems of ignition for a Brown two-cylinder motor cycle, magneto and accumulator. On page 79 of "Motor Cycles and How to Manage Them," you cite information relative to the above, but I am at a loss to know how same can be accomplished, as the make and break contact breaker is affixed to the Brown. How could the magneto also be used, *i.e.*, where would the gears be placed to operate the magneto? The gears would have to be placed on contact side of engine, so where would the make and break go? I suppose another handle for spark advance would also have to be put on machine for operating magneto. I should be greatly indebted for information as to how to proceed on this point. I do not know of any further alterations on the Brown in order to have two systems of ignition, but if there are would you kindly state same.—J.F.D., Manila, U.S.A.

You will notice that on illustrations of Brown motor bicycles with magneto ignition, that the magneto is gear-driven. It will be, therefore, necessary to have a special gear wheel on which there is a boss to carry the cam of the contact breaker, or another alternative is to have the cam screwed on to the wheel, the holes being made and tapped before the wheel is hardened; the contact-breaker can then be fitted without much difficulty. Another alternative is to use the latest pattern C.A.V. magneto (made by C. A. Vandervell and Co., Warple Way, Acton Vale, W.), which will allow the use of accumulators for starting purposes without the necessity of using a separate coil. The same handle can probably be used for advancing both ignitions. In the case of the latest Brown motor bicycles the ignition gear and magneto are carried on special castings, so if you want to fit a magneto to an older pattern machine, or to one which was primarily intended for accumulator ignition, you will have to have a special bracket made for the magneto, and it will be most convenient to drive the latter by means of a chain. For this purpose the half-time shaft might be made longer, so as to carry the magneto driving sprocket.

Crack in Cylinder, Piston Rings, and Brake Lining.

I have a 1904 Rexette which has had very little wear. Once or twice lately when turning the engine round before starting up, after standing a week, I have had about an eggcupful of water squirt out of the compression tap when opened. The engine, after misfiring occasionally, runs all right. I have had the cylinder off, and could see no crack anywhere inside, so I connected the water jacket up to the main (water about 30 lbs. pressure) after plugging up one outlet. After two minutes I disconnected, and on examining the explosion chamber found about three small globules of water on one side. Would this be sufficient to cause loss of power? and would a solution of sal-ammoniac put into the water jacket do any good? The piston rings are bright all round, but rather a bad fit in the piston; the top one moves up and down about 1-64in., and the other two slightly. Are these all right? I mention this, as I cannot climb hills on the top gear, I used to get up with ease, but I think this is due to the back band brake, on which a new fibre has lately been fitted, and which I have just found is a very tight fit on the drum. What is the best material for external band brakes? The fibre that has just been fitted seems very hard and not very pliable.—NOVICE, Birmingham.

We are very much afraid that the cylinder is cracked. Letting in water under pressure would probably not be as good a test as it at first seems, since the water is cold, and the crack, if there is one, is naturally contracted. On the other hand, when the engine is warm and the water hot a considerable leakage may ensue. You might try filling the jacket with a strong solution of sal-ammoniac with iron filings, and if not successful you had better send the cylinder away to be repaired. The piston rings do not seem in very good condition, and we should recommend you to try a new one at the top. A good lining for external band brakes is Gandy belting, sold by G. T. Riches and Co., Store Street, Tottenham Court Road, W.C.; also Frood's brake lining, obtainable from Sovereign Mills, Chapel-en-le-Frith. Bad hill-climbing is usually due to weak compression, and until the crack is stopped up the engine will probably not give off its full power.

West Essex A.C.

The annual dinner and distribution of prizes will be held at the Seven Kings Hotel, Ilford, on Thursday, January 9th, and an enjoyable evening is promised.

The Motor Cycling Club, Ltd.

The annual general meeting of the above club will take place on Monday evening, January 27th, at eight o'clock, at the Tudor Hotel, Oxford Street, W.

The following new members were elected at the last committee meeting: Messrs. A. J. Bonsor, J. Marshall, A. S. Phillips, E. Pond, M. J. Schulte, and A. Warnery.

Bocardo M.C.C., Oxford.

The above club held its second annual dinner on Friday, December 13th. There were a large number of members and friends present, and the function proved a great success in every way. The committee's thanks are due to all those who so ably contributed to the musical programme. The next election of new members takes place early this month, and applications should be sent in as soon as possible to the hon. secretary, W. A. Matthews, 6, St. Aldate's Street, Oxford.

Lincolnshire M.C.C.

The annual general meeting, smoking concert, and distribution of prizes are fixed for the afternoon and evening of Saturday, January 11th, at the club headquarters, the Spread Eagle Hotel, Lincoln. It is hoped that every member will endeavour to be present, and that there will be a good start for the New Year. A club journal is to be issued, and it is believed it will enable the members to keep in closer touch with the club. Several important proposals will be made at the A.G.M., and members having any suggestions for meets, competitions, or other work should communicate with the hon. secretary, Mr. G. J. Wilkinson, 18, York Avenue, Lincoln. Several motor cyclists are waiting to join the club, and it is hoped the members will individually make a point of sending the names on to the hon. secretary. The club was very successful last year, but it is hoped to do far better in 1908.

Coventry M.C.

Numerous trophies, medals, and other prizes will be distributed at the above club's annual dinner on the 11th inst. A big attendance is expected.

North-west London M.C.C.

A whist drive was held on Saturday, December 21st. The numbers attending far and away exceeded expectations, amongst the guests being some well-known motor cyclists. The event was the first of a series of social gatherings which have been arranged for the winter months, and was conducted under the able management of Mr. and Mrs. Brighten, to whom the club is indebted for the use of their charming home. In view of the numbers, these evenings in the future must necessarily be held at a hall.

Members are reminded of the annual dinner on January 11th.

Surrey M.C.C.

The Surrey Motor Cycle Club has been formed. This step was taken at a meeting held at the Albion Hotel, Woking, on Friday, the 20th ult. Mr. R. Bryett, of Guildford, presided, and there were also present Messrs. H. R. Walker, W. H. Austrian, J. H. Sparks, L. W. Pullman, A. A. Hitch, W. T. Lloyd, A. R. Broker, and E. H. Russell.

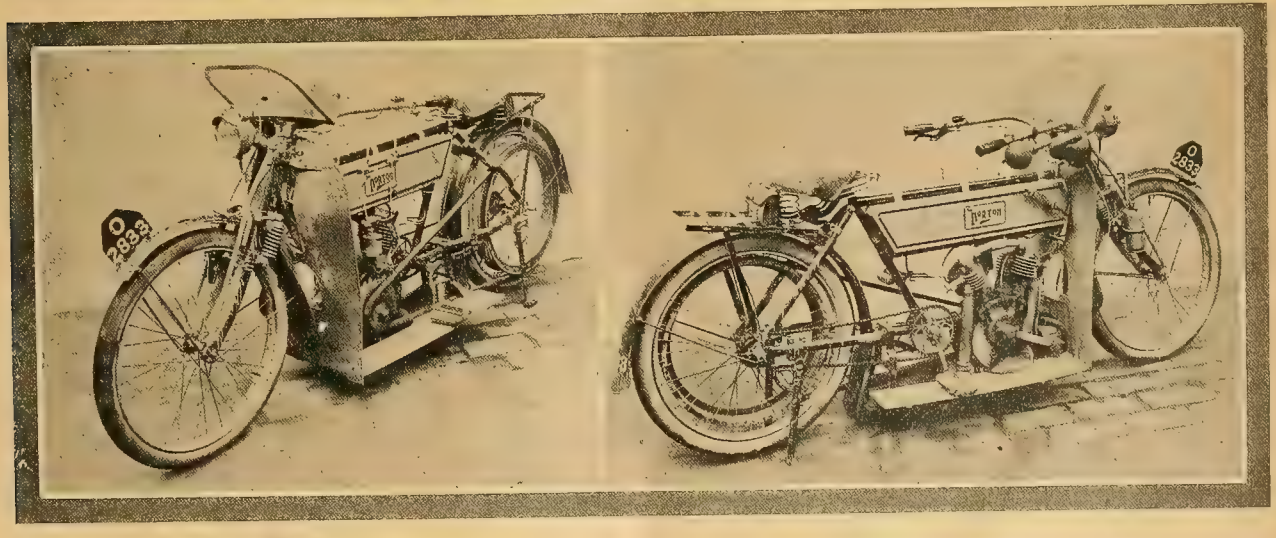
On the motion of the Chairman, seconded by Mr. Walker, it was decided to fix the annual subscription at 10s. 6d.

The Albion Hotel, Woking, will be the headquarters of the new club.

Mr. Bryett was elected chairman, Mr. Walker vice-chairman, and the following were appointed the committee: Messrs. Russell, Pullman, Sparks, Austrian, Brooker, Lloyd, and Allcott. The hon. secretary is Mr. A. A. Hitch, Ashcott, Wodeland Road, Guildford, and he will give the necessary information to intending members.

The first meeting of the committee will be held on the 17th inst., when the rules will be drawn up and afterwards submitted to a general meeting for approval.

The Motor Cycle will be recognised as the official journal of the club.



A 5 h.p. Norton Twin-cylinder Motor Bicycle, specially protected against mud and fitted with footboards, retaining the use of pedals. For detailed description, see page 13.

New Members of the A.A.

Ninety-four new members were elected at the last fortnightly meeting of the committee of the Automobile Association.

Motor Cycle Mounted Police.

The Massachusetts State Police are to be provided with thirteen new M.M. single-cylinder motor bicycles for the suppression of furious driving. The Boston police are also adding to the number of motor cycles they have in use to check "scorchers."

Motor Cycling in Germany.

A trial for motor cycles and voiturettes will take pace this year under the joint auspices of the German Motor Cyclists Association and the Imperial Motor Club. August is mentioned as the month, but nothing definite can yet be announced as to the date, nor has the course been chosen. The Association's 1908 congress will meet in the Rhine district on Ascension Day.

Chose a Tricar.

Paul Ragueneau, a competitor in an International cross-country race recently held in France, is now the happy owner of the first prize, a 4½ h.p. Austral tricar, which was presented to him by the proprietors of *Les Sports*, a Parisian sporting daily paper. The representatives of the paper asked him to name his choice, and he selected a tricar.

More Injustice in Wales.

A police trap is working in the village of Panb, near Oswestry, Salop. A motor cyclist was recently summoned for travelling at a speed of 23½ miles per hour (according to the police) on a 1½ h.p. machine and fined £3 and £1 12s. costs, with the option of a month's imprisonment. The accused is positive that his low-powered machine will not exceed seventeen miles per hour on the level. Unfortunately, it was only his second ride on a motor cycle.

Who Wants to Drive in the Grand Prix?

Racing motor cyclists, now is your time! Would you like to drive a racing car in the great French road race, the Grand Prix? The editor of *Les Sports*, Monsieur Georges Prade, 20, Rue Saint-Marc, Paris, has been charged by a leading firm of French manufacturers to receive applications for the post of racing car driver. The director of the firm in question is convinced that racing motor cyclists possess both courage and skill above the ordinary, and is apparently willing to give them a trial. The firm who make the offer is, we are assured, one of the most important motor car firms in France.

New Secretary of the Motor Club.

We learn that the successful candidate for the vacant secretaryship of the Motor Club is Mr. R. E. Edmondson, the secretary of the Crystal Palace Club and polo manager.

Royal A.C. New Premises.

Mr. C. D. Rose, M.P., who presided at a dinner of the Royal Automobile Club in London on the 18th ult., announced that a contract had been signed between the Club and the Commissioners of Woods and Forests for a ninety-nine years' lease of the old War Office in Pall Mall for conversion into new club premises. A swimming bath, a Turkish bath, and a gymnasium will be provided, and it is intended, if possible, to have 150 bedrooms for the use of members.

Earlswood Common Hill. Proposed Improvement.

Travellers on the Brighton Road between Horley and Redhill have undoubtedly several times wished that some improvement could be made in connection with the last ridge of hill at the bottom of Earlswood Common. In the interests of all road users, particularly those who drive small powered cars, horsed vehicles, and ride pedal cycles, the Roads Improvement Association has for some time been in negotiation with the local authorities and others with a view of getting some improvement made. A definite proposal has now been made. The Borough Engineer and Surveyor of the Reigate Borough Council, in whose jurisdiction the road in question lies, has worked out a plan for practically removing the hill and re-making the road at a cost of £1,000. He thinks his Council would be disposed to favourably consider the scheme, particularly if the R.I.A. would undertake to subscribe one-third of the cost, say £350, towards the work in connection with the lowering of the hill.

How the £350 will be Raised.

The funds of the Roads Improvement Association are, unfortunately, limited, and will not admit of it making any large grants towards the cost of local improvements. A member of the R.I.A., Mr. A. Lloyd, of Coombe Wood, Addington, Croydon, however, has been good enough to state he will be willing to contribute £200. This leaves a balance of £150 to be provided for by public subscription. There is a meeting of the Highways Committee of the Reigate Borough Council shortly, and as it is most desirable in these matters to strike while the iron is hot, it is hoped that the small balance required will soon be raised. Communications should be addressed to the hon. secretary of the Roads Improvement Association at 1, Albemarle Street, Piccadilly, London, W.

A Titbit from an American Paper.

"Motor cycles with which to catch law-breaking automobilists are being secured by all of the leading cities. The New York Police Department has ordered several motor cycles on a flat guarantee that the little machines will be able to develop a speed of 100 miles an hour."

A New Record in South Africa.

We are informed by Minerva Motors, Ltd., that a Mr. Wilson has ridden his Minerva motor bicycle from Alexandrafontein to Kimberley, a distance of about five and a half miles in 6½m. The machine, judging by an illustration we have before us, is a standard pattern 3½ h.p. single-cylinder Minerva, and the performance is therefore exceedingly creditable. The ride was accomplished on the 10th of last month, and the speed is equal to an average of fifty miles an hour.

The Value of "The Motor Cycle."

Mr. R. McL. Bishop, of Newfoundland, writes: "Just a word as to the value of your paper. During the summer I had an opportunity of selling a twin, but could not get it to fire in both cylinders. For days we tried every possible remedy, but could not succeed in getting it to run properly. When just about ready to give up in disgust the mail arrived with the copy of *The Motor Cycle*. As a last resource we looked through the Questions and Replies pages to see if anyone else happened to be in the same predicament, and there was. The same afternoon we had the machine running splendidly and sold it."

An Important Subject.

Mr. W. H. Wells will read a paper on "Motor Cycle Tyres and Accessories" before the members of the A.C.U. at 119, Piccadilly, W., some time this month. The lecturer will also, it is expected, touch upon another interesting subject, viz., suitable clothing for motor cyclists. Some riders are apt to convey the idea that motor cycling is a dirty pastime. Once away from the machine there is no necessity for anyone to know that the motor cyclist has been conveyed to his destination by a mechanically propelled bicycle. Strong macintosh overalls (falling well over the boots) and a coat can be slipped over ordinary walking attire; these with the aid of gloves and a silk neckerchief to keep the collar clean enable the motor cyclist to present a clean appearance at all times.

THE 1908

Riley

The Riley Tricar is a wonderful combination of simplicity and strength.

The Riley is so simple that no one experiences trouble to keep it in perfect running order.

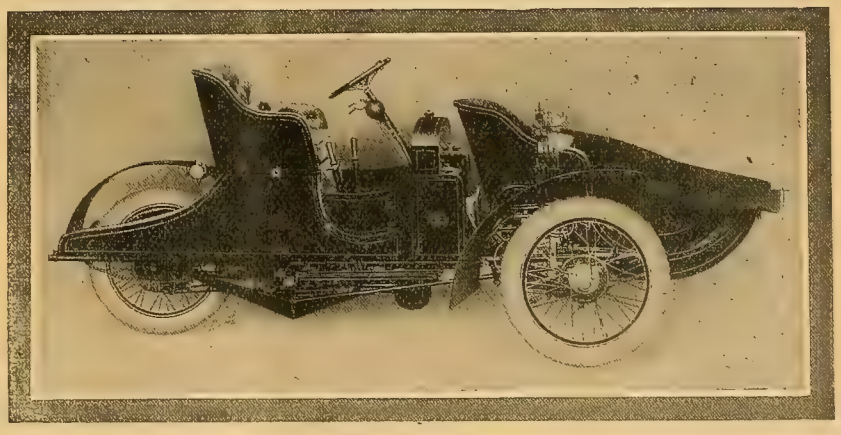
The Riley is so strong constructionally that it successfully withstands usage over the roughest roads, despite the fact that it is as fast on hills as a 40 h.p. car.

5 h.p. Models .. **85 gns.**
6 h.p. Models .. **115 gns.**
9 h.p. Models .. **135 gns.**

THE RILEY CYCLE CO., LTD.,
— Motor Dept., Coventry. —

London Agents:

Service Co., Ltd.,
292, High Holborn, London.



6 or 9 h.p. Model.

INVENTION'S GIFT TO SPORT.

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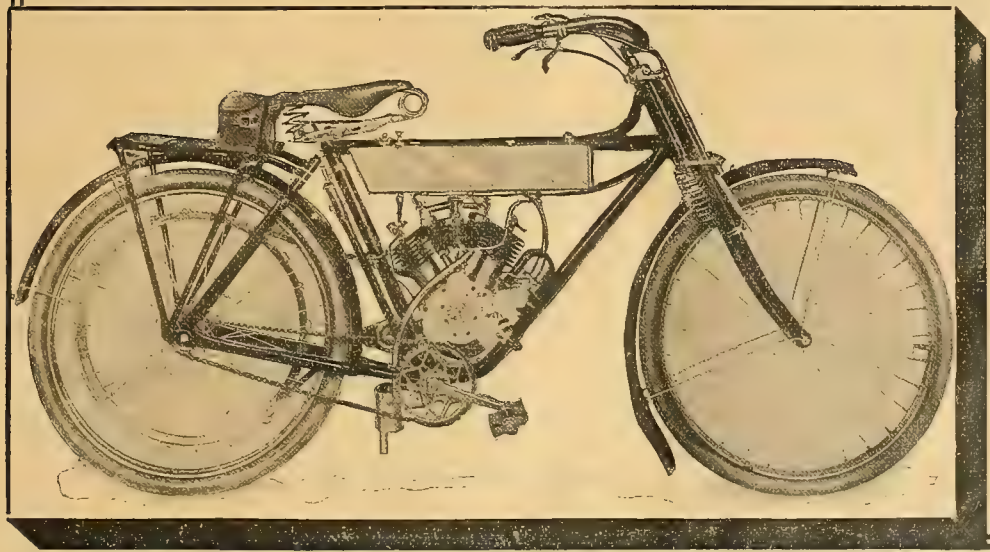
This LIGHTWEIGHT MOTOR CYCLE, designed by a genius—constructed by an expert—is the last word in automobile construction. Every necessary feature is included in its equipment: MAGNETO, LOW FRAME, HANDLE-BAR CONTROL, GUARANTEED MOTOR CYCLE TYRES, PETROL GAUGE. It runs smoothly and quietly, and has power to attain any pace from 4 to 40 miles an hour. Its moderate initial cost 35 Guineas—and low cost of upkeep, are further points in its favour.



You are cordially invited to write a card for fuller particulars.

THE MOTO-RÊVE CO.,
138,
Gray's Inn Road,
London, W.C.

The **ROC** has found its place in the New Year of 1908.

The **ROC** has distinguishing characteristics all its own.

THE LIVE BACK AXLE.
THE HAND STARTING.
THE GUARANTEED SPEED GEAR.
THE CAR-LIKE CLUTCH CONTROL.
THE METAL-TO-METAL BRAKES.
THE EASY RIDING POSITION.
THE DUPLEX FRAME AND DUPLEX TANKS.

The following Agents have been appointed for season 1908:

LONDON: Messrs. The Service Co., 292, High Holborn.
LIVERPOOL: Messrs. Hitchings, Ltd., 74, Bold Street
MANCHESTER: Messrs F. Harvey & Co., 6, Chapel Street.
GLASGOW: Messrs. Templeton Bros., Sauchiehall St.
EDINBURGH: Messrs. Alexander & Co., 108, Lothian Road.
NEWCASTLE-ON-TYNE: Messrs. W. Olliff, Grainger Street, N.
LINCOLN: Messrs. W. J. Binks & Co.
BRADFORD: Mr. J. Hodgson.
ROTHERHAM: Mr. E. Cross.
WEYMOUTH: Messrs. Tilly & Son.
CAMBRIDGE: W. King & Co.
BIRMINGHAM: Premier Motor Agency.

A. W. WALL, Ltd., Roc Motor Works,
DARTMOUTH STREET, BIRMINGHAM.

Telegrams: "Roc, Birmingham."

A New Year's Resolution

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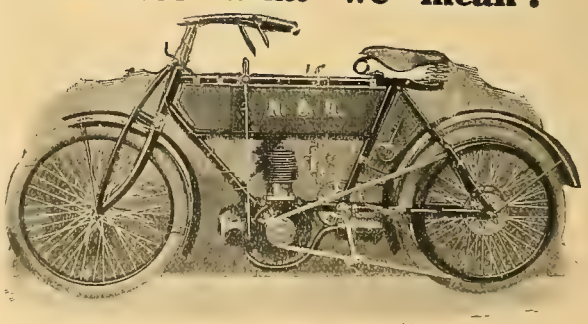
S. UCCESSFUL TIME!

U. NBOUNDED PLEASURE!

You see what we mean?



"We are exhibiting at the Manchester Show, February 7th to 15th, Stand No. 77.

If you have not already decided on your machine write for particulars of the N.S.U.

N.S.U. Cycle and Motor Co.,
78, Charlotte Street, LONDON, W.

A.J.W.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondent.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Cross-road Dangers.

[3025.]—I was very pleased to see letter 2995 in the issue of December 11th.

Yes, we do, indeed, deplore these terrible corner accidents. However careful we motor cycle riders are there is great danger at such places. Best always to go very slowly and sound horn well unless you can see over hedges sufficiently.

With silent cars and motor cycles it will be ten times worse, not only at corners, but everywhere. How many people look to see if anything is coming when they want to cross the road? The pop, pop, pop, saves them, and cannot be considered a nuisance, except perhaps to some people who have a great dislike to both types of machine. It is "Sweet Music" giving warning of its approach. I shall never change my ordinary pop, pop, for a more silent one. I hope many more riders will give their opinion on this subject.

ANOTHER MODERATELY NOISY ONE.

A Plea for Outside Flywheels.

[3026.]—I have had considerable experience with small petrol engines for motor cycles, and heartily agree with your correspondent, Mr. Harry Ricardo, in that the usual built up crankshaft is unsound and far less mechanical than solid crankshafts. Nevertheless, I think it will be generally admitted that, on the score of neatness, compactness, and balance, the usual arrangement of two enclosed flywheels is superior to one large outside flywheel with its overhanging weight. I have often wondered why makers do not adopt the method employed in a well-known single-cylinder car, which has a solid crankshaft with two flywheels inside the crankcase. The hole in the centre of each flywheel being a tight fit on the crankshaft and a single bolt passing through the crank pin secures the two flywheels firmly up against the crank webs. This design is simple and cheap, and with ball bearings in crankcase and white metalled big-end bearing of connecting rod, it is absolutely satisfactory. In conclusion, let me say that I look forward to your excellent paper more than any other from England. J. T. CLARKE.

Neuilly, France.

Sidecars.

[3027.]—I have just read Mr. W. Montgomery's remarks in letter 3004. Does he want to draw me into the old discussion on "which is the best sidecar?" I trust he does not, for, after all is said and done, his inflexible opinion is that the Montgomery is the best; my opinion differs, and that is what it amounts to—a matter of opinion, which is what Mr. B. H. Davies concludes in the same number, and to save time and space, I agree with all that that writer lays down.

Being unconnected with the trade, I have no axe to grind; but, nevertheless, wish Mr. J. Haslam all success in the projected match. If Mr. Montgomery wins I believe it will be the first competition of the sort in which he has succeeded (although I am open to correction on this point). He then alludes to my letter [2990] complaining that at one moment I enthuse over the rigid sidecar, and the next advise that no liberties be taken, and that balancing does much.

Well, I can only excuse my remarks by referring him to an inconsistency (?) in his own letter: "The addition of a sidecar tends to encourage rather careless driving," and I think my remarks are as justified with the flexible as with the rigid type.

In answer to the question, how often do these "critical moments" occur? I will say twice in a mileage with a rigid sidecar of over 4,800, and both times were caused by my over-riding a turning on the near side, which I had overlooked, and down which my route lay. Going along at a normal speed, I saw the sign post at a late moment, and turned. The sidecar wheel leaves the ground as you turn at speed towards that side; but this is where the balancing comes in. You must weigh that wheel down quickly, or go into the opposite hedge.

That is my experience, and that is why I repeat I cannot understand Mr. Lewis Humphries's [2965] *contretemps*, though Mr. Montgomery pretends he quite sees through it all.

I could take a corner on the opposite side to the sidecar at quite twenty miles an hour, and not have it on top of me, but I don't practise blinding round corners on any form of vehicle. Mr. Montgomery still keeps the steering bogey alive. Can it be that Mr. Davies, others, and myself, have stronger arms and better judgment than Mr. Montgomery? In conclusion, if this match comes off, and if any difficulty is found in finding a suitable road, I can recommend a delightful highway for the purpose, and I should like to be one of the many interested spectators.

B. RICHARDSON BILLINGS.

[3028.]—I am delighted to notice that Mr. Montgomery has at last accepted my challenge. Seeing that this was thrown out some six weeks ago, it seems very strange to me that Mr. Montgomery has not come forward ere this, unless (as I should imagine is the case) he has been deferring doing so until he had his new skid-preventing device ready.

Seeing that this was not out when I entered my challenge, I take it, of course, that Mr. Montgomery will not use it, nor yet unduly tighten the joints of sidecar to make it all but a rigid in name.

Until a week ago I kept my machine together ready, but since then have taken it to pieces for enamelling. Have had tyre retreaded with smooth rubber specially. I will, however, have all ready by the first week in January.

On the above understanding, and on the conditions mentioned in the issue of November 6th, I shall be most pleased to meet Mr. Montgomery, and travel one hundred miles for that honour. All that is wanted now is for some interested grease-plugger to come forward and introduce us to the necessary greasy road surface (for this event, at any rate), the more curves to negotiate the better; but I said grease (soft soap variety). I can find plenty of the right stuff in Derbyshire, but, unfortunately, this mortar mill is not centrally situated between here (Sheffield) and Bury St. Edmund's.

JOHN HASLAM.

Hill-climbs Vetoed.

[3029.]—In your article in the issue of the 18th December you write, "Undoubtedly the action of the R.A.C. is prompted by the very best motives." As an ardent motor cyclist, I should very much like to know what these motives are. It seems to me that a "reliability trial" tends to promote professional riding and trade advertisement, and to stifle the interest taken by amateur motorists in all competitions. In hill-climbs, success greatly, and, in fact, wholly, depends on the personal skill and ability of the driver. This fact essentially leads to a great amount of fun and competition among persons who motor cycle for a hobby or pastime.

In a reliability trial, however, the vast majority of competitors are professional riders promoting, individually, the popularity of the firms they represent. Of the thousands of amateur motor cyclists there are very few who can spare the

time to take part in long contests such as the A.C.C. six days' trials and other trials of a shorter or longer period.

I, myself, always judge the good points of a make not by its exploits when driven by a professional, but by its wins when driven by an amateur on a standard type of machine, for it is a well-known fact that professionals ride special machines, and do not do these wonderful times on the ordinary touring model.

I think that this action of the R.A.C., though it will meet with the approval of those persons interested in the trade, will, however, be strongly disapproved of by amateur riders who form the great majority, and who motor cycle for sport and pleasure and not for advertisement.

I do not think that "hill-climbs confined to club members" will cease to exist, even if they offend the "governing body" of the pastime, but I do think, and feel quite sure, that if the A.C.U. support this action of the R.A.C. they will alienate many clubs which would otherwise affiliate.

JOHN R. F. STOKES.
President, Cambridge University M.C.C.

P.S.—I should be much obliged if you will insert this letter in *The Motor Cycle*, as it represents the feelings of my friends with regard to this matter.

A Motor Cycle Wind Screen.

[3030.]—I enclose a photograph of a wind screen for a motor cycle. I may say that before I fitted the wind screen I was greatly bothered with my eyes, as I am compelled to wear eyeglasses, and did not like goggles.

The wind screen is fitted to the top bar of the frame. As you can see from the picture, the screen can be fixed at any height or angle. You will see also from the photograph that

A motor cycle wind screen referred to in the accompanying letter.

the screen is slightly below the level of my eyes. I am altering the design slightly, so that I shall be able to have the screen well below my eyes.

I trust this may be of assistance to some of the weak-eyed (like myself) motor cyclists, and enable them to obtain more pleasure from their motor cycling. I shall be pleased to give any further particulars to any of your readers who may care to communicate with me through *The Motor Cycle*.

GLEN FULTON.

The 1908 T.T. Race.

[3031.]—We have the intention of competing this year in the Tourist Trophy Race, and would like to have all the information with regard to the rules and specification of the machines admitted as early as possible. If you have these particulars we should be pleased if you could let us know same. In case nothing has been done in this matter, it would be advisable to urge in your paper that these rules should be decided upon now, as you will understand that manufacturers of motor cycles who are interested in this event, are rather anxious to get their machines tuned up in time. Later in the year they will not have sufficient leisure, and for that reason may abandon the contest altogether. on acount of their being too busy to make preparations for the event.

N.S.U. CYCLE AND MOTOR CO.

[3032.]—I have read your remarks on the Tourist Trophy Race for this year with interest, but fail to see some of your arguments for adopting the bore and stroke, *i.e.*, the cubical contents for limiting the engine size. You say: "In the case of motor cycle engines, placing a limit on the bore alone would tend to the introduction of engines with the largest bore and a short stroke, and speed would depend on a very high number of engine revolutions."

This, I think, is wrong. As far as I remember, the bore of the cars for the international races has been limited to 145 mm. per cylinder. Why? Because a limit of cubical capacity of, say, 145 × 145, would simply lead to racing monsters, with dimensions of 175 × 100 (same contents), and so it really has been. The latter should give about forty per cent. more power in spite of the same capacity. The same refers to the motor cycle engines. If the bore is limited to, say, 85 mm., who will win? Not the man who chooses a stroke of 80 or 75, but he who makes his motor 85 × 95 or 100 mm.

For a track or flat road race the shorter stroke may give good results, but in a hilly district the longer stroke will prove the winner on account of better climbing capabilities owing to higher engine efficiency at slow engine speed.

Now let us consider your proposal to limit the bore and stroke.

Taking 85 × 85 or equal volume as the limit, what would it lead to? The answer was given some four weeks ago by Hulbert:

			b.h.p.
Triumph, 1907	82 × 86 good	0.455 litre	3.6
Proposal, 1908	82 × 89 better	0.470 ,,	3.7
Final, 1908	84 × 86 best	0.476 ,,	3.9

In spite of the last two having almost the same capacity, the 84 is a much more powerful engine (approximately five per cent. or ¼ b.h.p.)

No, sir. First the limiting of the bore and stroke would lead to freak machines. The following table will show this, the "racers" being marked by *:

* 90 × 76	0.484 litre	4.3 to 4.5 b.h.p.
* 87 × 81	0.482 ,,	4.25 ,,
85 × 85	0.483 ,,	4.0 ,,
83 × 89	0.482 ,,	3¾ ,,
82 × 91	0.480 ,,	3.6 ,,
80 × 96	0.483 ,,	3¼ to 3½ ,,

The short stroke with a big cylinder diameter would win. As far as the experience of this year goes, the somewhat longer stroke has shown its superiority for all round touring work. If this rule is added, *i.e.*, "The stroke must have at least the same dimension as the bore," then I agree with the cubic capacity rule. 86 × 86 would equal 0.5 litre.

Taking the bore only into account, and 85 mm. as the limit as above, we should get the corresponding table:

* 85 × 75	0.426 litre	3⅜ b.h.p.
85 × 80	0.455 ,,	3.8 ,,
85 × 85	0.483 ,,	4.0 ,,
85 × 90	0.510 ,,	4¼ ,,
85 × 95	0.54 ,,	4½ ,,
85 × 100	0.57 ,,	4¾ ,,

Here it is not the short stroke that wins because the bore is limited, but the long stroke, and this would lead to the other extreme.

The most flexible engine will have about the same or slightly longer stroke than the bore. An extremely long stroke gives good climbing capabilities, but requires much heavier fly-wheels for smooth running at slow speeds.

I hope my rather long letter has shown what I consider one of the most important points for limiting the engine size for future Tourist Trophy races.

If the rule is accepted, 85 × 85, then we will not see many single-cylinder engines above 4 h.p. If the bore only is the limit, then 4½ h.p. may be the largest engine. In any case, we want to see real efficient touring machines entered for the Tourist Trophy Race, and last, but not least, get the various manufacturers to build engines that fulfil the rules and also prove to come out rideable mounts in the end.

Berlin. R. RUDE, C.E.Eng.

Substitutes for Matches.

[3033.]—With reference to Mr. Preston's "tip" for lighting a lamp on a motor cycle, may I offer the following "tip," which may prove useful to a rider who is unfortunate enough to have neither matches nor cigarettes when lighting up time arrives. If he is not near any house let him remove the sparking plug, take off the lamp, turn on the water, prop up the plug in a suitable position, jack the back wheel up, and pedal vigorously with spark lever advanced, and he will find the spark strong enough to ignite the gas. No doubt Mr. Preston's "tip" might be of use, but a rider would probably reserve his last match for his lamp, and would sacrifice the cigarette. I have never tried his idea, but I have done mine with success.

I see that manufacturers are wanting a round canvas and rubber belt. I don't know of a rubber and canvas round belt, but if anyone cares to write to me (care the Editor) I should be glad to let him know of a good substitute for leather. B.E.S.

The A.C.C. Council Meeting.

[3034.]—I wish to say a few words in reply to Mr. T. Straker, of Hull [letter No. 3007]. The greater part of your correspondent's letter is too foolish for words, and too ridiculous for notice—simply parrot talk—but when he says the Council meeting was a "packed one," and that the reforms are "ridiculous schemes brought forward by outsiders, and prompted by nothing but jealousy," he is making statements which are, to put it mildly, not true, and I challenge him to prove them: 1st, "that the meeting was a packed one"; 2nd, "that the scheme is prompted by nothing but jealousy." If Mr. Straker will prove his statements, I shall have pleasure in sending £2 2s. to you to hand over to some charity.

It will perhaps be remembered that Captain Foster, another Hull gentleman, said the "eight" were a racing clique. As I happen to be one of the eight, and know the others well, I can say that a greater untruth was never uttered, and although proved to be untrue, Captain Foster never withdrew his remark.

I hope we are not to take Captain Foster and Mr. Straker as being representative of the Hull motor cyclists; if we are, I fear there is not much sportsmanship about them.

JOHN H. HALL.

Some Suggested Improvements.

[3035.]—"Ixion," writing about pedal cycles at the Show, says: "Exhibitors confessed that they had only minor refinements in the way of novelties. . . . The motor cycle is approaching the same stage." Here are some suggested improvements that it would be interesting to have your readers' opinions on:

1. Spring forks should allow the wheel to move upwards and backwards with reference to the frame on meeting an obstacle. Most spring forks allow upward movement; one (Triumph) backward movement; so far as I know, only one (N.S.U.) both.

2. Magnetos and contact-breakers. One point to be mounted on axle of engine or armature so that it revolves; this is quite easily done, and prevents pitting, and keeps two good flat surfaces. [?—ED.]

3. Mudguards much wider, all leather flaps held by Bulldog clips. Instantly detachable for washing.

4. Belt fasteners. Stanley detachable, but with double hooks of three sizes. I have used a locally made one for 3,000 miles, and have not yet cut belt, but am now on shortest hook.

5. Variable geared pulleys. Rod taken to one side of Autoloc lever. Spring to other side of Autoloc lever. Spring instantly takes up slack in belt, and keeps it there. No jerking. To put gear "up," it is no trouble to depress spring side of Autoloc lever releasing jockey pulley.

6. Carburetters. Main air inlet to be adjustable. Very useful in traffic for slow running. Height of petrol adjustable, *e.g.*, in F.N. by unscrewing top of float chamber. Part of main air supply to be through two ⅛in. holes, opposite each other at level of top of jet. By looking through holes top of jet can be seen *in situ*. If jet stopped, it is seen at once. Level of petrol in jet adjusted at once. Petrol brought from float chamber to jet *viâ* a pipe dropped 3in. below jet chamber. Union at lowest point. Jet detached for cleaning by fingers in two seconds, *e.g.*, Coventry Simplex. Inlet pipe attached to carburetter by bayonet joint, like an electric lamp holder. Attachment of carburetter to frame by large butterfly wing nut.

7. All brakes adjustable with fingers.

8. Exhaust lift—more leverage.

9. Automatic inlet valves. Springs outside inlet pipe. Tension adjustable by nut and lock-nut.

10. Tension of belt variable at will, *e.g.*, Light F.N.

11. Engine. Two-stroke, *e.g.*, Valveless. This would have outside flywheels (advocated in a recent number); perfect balance; few parts (about eighteen all told); only seven moving parts; nothing to go wrong; no separate carburetter; would develop 4 h.p. at 1,400 r.p.m., and as much as 2 h.p. to 2½ h.p. at about 200 r.p.m., obviating two speeds. Owing to positive supply of mixture, it would run at 100 r.p.m., and fire regularly.

12. Back mudguard detachable by undoing one butterfly wing nut.

In conclusion, to refer once more to the question of two-stroke engines for motor bicycles, why has no firm put one on the market yet? Here are a few of the advantages we should gain: Cheapness; ease of manufacture; few parts; great power at low speeds; great torque; steady firing at low speeds; better balance; simplicity; reliability; and no gradual loss of power due to pitted valves, leaking washers, weakened springs, worn tappets; no two to one gear; no noisy valve gear; smoother and therefore less evident exhaust; advantages of four cylinders with simplicity of one

T. P.

By Mountain, Glen, and Loch.

[3036.]—Perhaps Mr. Maitland and "H.G." will be interested to hear that in July last I negotiated successfully the hill "Rest and be Thankful" in Glen Croe, including the sharp corner. There is no doubt that this hill is an exceptionally severe test for any motor cycle. My engine is one of the old 1904 Ormonde-Kelecoms of 3½ h.p., geared 5½ to 1, no pedals.

For comfortable touring in Scotland a machine is wanted which is flexible on hills. Flexibility on the level only will not do. A two-speed gear is one way of solving the problem, but the usual type adds too much to the already excessive weight. I prefer to use a flexible engine and keep down weight. An adjustable pulley adds practically no weight, and provides an emergency gear or means of altering to a suitable ratio for certain districts.

I believe that by paying more attention to the selection of materials a machine could be made, weighing from 100 lbs. to 120 lbs., which would mark a real advance, and tend to make motor cycling more popular than it is. I have come to this conclusion, after studying the results obtained from my machine, which weighs about 130 lbs., and though far from perfect has given me great satisfaction. I have experimented with a 3 h.p. 80 × 80 mm. engine of the same design (I can fit either engine as the crankcase is the same size), and believe this to be the most all-round efficient engine I have ever come across. I think it could beat the larger engine for efficiency, though I have never tried to get the best results from the latter. The Triumph Co. seem to be moving in the right direction. I should like very much to see the latest pattern tackle "Rest and be Thankful."

JOHN MILLER.

EXPERIENCES WANTED.

"A.E.T." would like readers' experiences of the Zenith Bicar.

"Lamps" thanks the several writers who have sent in suggestions, and would like others to forward any ideas they have got, such as shape, size, weight, etc. Every rider has an idea he would like carried out if he had a lamp made specially, so now is the time.

Another Magneto Mystery.

MRS. EDWARD KENNARD recently presented your readers with a magneto mystery. I beg to bring another to your notice—I think a hardly less interesting one, since it still remains a mystery. I will preface my remarks by saying that I am a firm believer in magneto ignition, preferably H.T., for motor cycles, though I have also used L.T. with satisfaction.

Before stating my experience, it is necessary I should mention the machines I ride, since two machines are concerned. My mounts are two motor bicycles, viz., (*a*) a 3½ h.p. 1907 magneto (Simms-Bosch) Triumph; (*b*) a 3½ h.p. 1907 magneto (Simms-Bosch) two-speed Phelon and Moore. I ride one or the other machine, as inclination prompts, or the nature of the country to be traversed suggests. For very hilly country of which I have had no previous riding experience, I should use (*b*). I mount both machines by the step—(*a*) I mount and start by pedalling, (*b*) I start by pushing a few yards and getting into the saddle, though occasionally I start the engine by handle with the engine free. Both machines are equally satisfactory, and have the same characteristics as regards starting, that is to say, they will often start instantly, or nearly so, while from time to time they start sluggishly.

Now for my experience. I returned from Fowey in Cornwall recently, and reached home in the evening, after a fine run, marred by some wet for the first sixty miles. I did what was necessary to the machine for the time being, and gave it a good cleaning later on.

Next day, wishing to clean out the crank case by running the engine under its own power with paraffin in the base, I found the magneto would not spark; neither would it the following morning.

It was not a case which included switches, wiring, or terminals, as I reduced it to one of magneto by removing the wires and applying the magneto spanner in the prescribed manner to test for a spark. Result: *No* spark.

As I had no reason to suspect the armature, and knew everything was clean and free from oil, etc., I applied a further test. I removed the contact breaker disc from the Phelon and Moore and substituted the Triumph one. It sparked at once, and started easily by pushing.

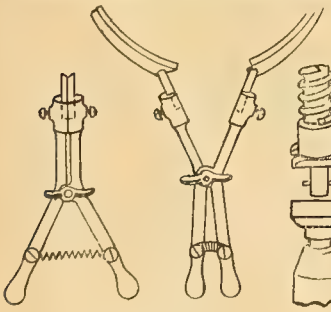
I thereupon fitted the Phelon and Moore contact breaker disc to the Triumph, which *failed* to reply with the slightest spark. I then replaced the Triumph contact breaker disc on the Triumph, and fitted a new platinum screw to the Phelon and Moore disc (though the screws were almost new and clean) and a new fibre ring (though that was hardly worn), and I tried for a spark again. I got a feeble one each time with the contact breaker disc cover *removed*, but only once a very weak one with the contact breaker disc cover in position. This was with the engine free and turning by handle, which had given good results with the contact breaker disc from (*a*). To see if the higher magneto velocity obtained by putting in the low gear and pushing the machine a few yards would make any difference (the contact breaker cover being on), I tried the method, when the machine replied with the welcome sounds of firing. The case is puzzling, as, firstly, nothing was *worn*, secondly, *everything was clean*. I had cured the trouble, but not elucidated the cause thereof.

I may add that the magneto parts sent to the S.B. Magneto Co. for inspection were returned by them after examination "as perfectly in order," so that a crack *through* the vulcanite disc or cap on the spring fixed inside the brass cover over the contact breaker disc (dust cap) does not matter. The mystery is *still* a mystery. I fitted a new contact breaker disc and dust cap, and have had no further trouble. At the same time, those returned after inspection do work now, so that the sudden failure is most inexplicable.

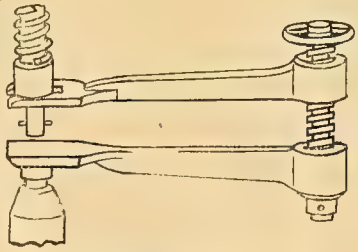
A. WHARTON METCALFE, Assoc.M.Inst.C.E.

TWO USEFUL MOTOR CYCLE TOOLS.

SHARPE'S Universal piston ring remover is a handy tool which was shown on the XL'all stand at the Stanley. It is self-explanatory on referring to the accompanying illustration. The points are detachable and interchangeable, and can be filed to suit the shape of the slot of any piston ring. Another useful appliance which will also interest the motor cyclist is the Universal valve spring lifter. The two levers have right and left-hand threads respectively, so that when the screw is turned the levers move to or from one another with a parallel motion, thus preventing any strain being put upon the stem of the valve. The above, together with the various types of motor cycle silencers, which gained first prize in the A.C.C. silencer trials, were exhibited by Sharpe's Universal Patents Co., 720, Holloway Road, N.



The Universal Piston Ring Remover.



The Universal Valve Spring Lifter.

"Motor Repairing for Amateurs," by J. H. Knight, 2s. 6d. nett, post free 2s. 9d. Iliffe & Sons Ltd., 20, Tudor Street, E.C. This useful little book describes by means of diagrams and drawings how it is possible for an amateur owner to do the majority of his own repairs with the aid of tools to be found in an ordinary amateur's workshop. Many little hints and tips are given for making repairs, which have been found to be expeditious and at the same time satisfactory. The book should also be particularly useful to motor car owners in the colonies, who in many cases are situated miles from repairers. The manner in which to use tools and to do fair fitting and turning, *i.e.*, sufficient for ordinary repairs, can be acquired by carefully reading this book.

VINDEC SPECIAL

S.B.T. Co LTD

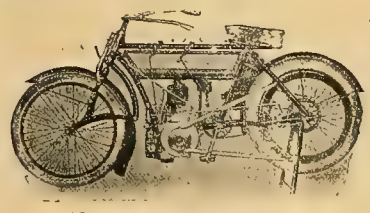
THE MOTOR CYCLE OF MERIT.

ROLL OF HONOR

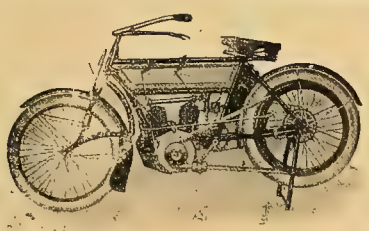
— 1907. —

77 AWARDS IN 43 EVENTS.

17 secured by Trade Representatives,
60 secured by PRIVATE OWNERS.



Model H, 3½ h.p., 80 × 98.



Analysing these results, you find reliability, ease of control, and speed. The maximum of comfort is provided by the Truffault Suspension Fork. The conclusive proof of efficiency — Private Owners taking 60 awards in open competitions.

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THE FAIRY

LIGHT HORIZONTAL TWIN-CYLINDER

MOTOR CYCLE

FOR 1908,

COMBINING NOVELTIES OF GREAT INTEREST TO MOTOR CYCLISTS.

THE FAIRY MOTOR Co.

(LATE LIGHT MOTORS, LTD.),

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Telephone 1021, DEPTFORD.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given. c/o *The Motor Cycle*, 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

HALIFAX Motor Exchange.—As agents for the Rex Co., we have a few shop-soiled 1907 3½ h.p. singles, £20; 5 h.p. twins, £23; De Luxes, black and gold, £35; 3½ h.p., magneto, £23; cannot repeat these.

HALIFAX. — We hold the finest and largest stock of second-hand motor cycles in the world. 100 in stock.

HALIFAX.—1908 5 h.p. twin Rex, Tourist model, magneto, ball bearing engine; 43 guineas.

HALIFAX. — 1908 35 guinea magneto Rex; liberal exchange allowances; write us quickly; pounds saved.

HALIFAX. — 1908 5 h.p. Rex de Luxe, twin tyre, Roc clutch, and two-speed gear; 55 guineas; liberal exchange.

HALIFAX.—Light low Rex, spring forks, Longuemare, in very good order; £14 17s. 6d.

HALIFAX.—Very fine 3½ h.p. Rex, 22in. frame, trembler coil, vertical engine; £11 5s.

HALIFAX.—5-7 h.p. Peugeot, Truffault spring forks, and fine sidecar, magnificent condition; £25.

HALIFAX.—More 1906 Rex twins, special price £19 19s. See the astounding records these magnificent machines are making; £15 10s. allowed for any approved 1906 model.

HALIFAX Motor Exchange. — Extended payments without extra charge.—16, Westgate, Halifax. Telephone, 766. High grade machines purchased for spot cash.

NEW YEAR BARGAINS.

Covered by Certificate.

You are only ONE in a thousand wanting a bargain, but also wanting to be sure of its genuine nature. You cannot go wrong under these conditions.

*Triumph 1907 3½ h.p., magneto, Roc clutch and speed gear	£45 0
*Triumph 1907 3½ h.p., magneto, like new	35 0
*Triumph 1906 3 h.p., magneto, overhauled and re-enamelled	30 0
*Triumph 1906 3 h.p., magneto	25 0
*Quadrant 1908 3½ h.p., magneto, new Coventry model, used few times	36 0
*Quadrant 1907 3½ h.p., accumulator ignition	25 0
*Quadrant 1907 3½ h.p., do., Palmer tyres	25 0
*Brown 1907-8 3½ h.p., used few times	50 0
*Vindec Special 1907 3½ h.p., two-speed gear, soiled only	30 0
*Rex de Luxe 5 h.p. Twin, new, soiled only, twin back tyre, Roc clutch, magneto	30 0
*N.S.U. 3½ h.p. 1907-8, new, soiled only	29 10
*Roc 4 h.p. 1907, magneto, clutch, hand starting	32 0
*N.S.U. 1907 4 h.p. Twin, magneto, stand, etc.	30 0

***IMPORTANT NOTE.**—Everyone of above is sold with the Agency's certificate testifying to the fitness and absolute sound condition of each machine and guarantee of being in proper running order. Some are, indeed, even better than new, being perfectly tuned up.

NOTE THESE—also in running order:

Riley Tricar 9 h.p., three speeds and reverse (cost 130 guineas less than two years ago)	£55 0
N.S.U. 3½ h.p., magneto, spring forks	22 0
Excelsior Tricar 4 h.p., water-cooled, honeycomb radiators, complete	18 0
Excelsior Tricar 3½ h.p., air-cooled, two-speed gear	18 0
Clement-Garrard Lightweight, single	7 10
Clement-Garrard Lightweight, twin	12 10
Rex 5 h.p. Twin 1907 model	17 0
Rex 3½ h.p. John-o'-Groat's model (spray)	9 10

ACCUMULATORS,

1908 type, 25 amp., guaranteed Premier make, sample for 12/6.

ELECTRIC HORNS,

1908 type, includes wiring and button, 10/6.

NEW PREMIER MINIATURE CAR SEARCHLIGHT,

with magnifying reflector lens, £1 5s.; with generator 5/6 extra.

Premier Motor Agency

BIRMINGHAM.

World's Motor Cycle Emporium.

1908 Lists now out.

MOTOR BICYCLES FOR SALE.

HALIFAX Motor Exchange, 16, Westgate, Halifax. Telephone, 766.—Minerva, 3½ h.p., spray, 26 by 2¼ Clinchers, accumulator ignition, very good order; £17 10s.

HALIFAX.—Special value. Nip, scrat, and bite. £2 10s. deposit and six monthly payments of 25s. secures 3½ h.p. Rex, 2 h.p. Minerva (26in. by 2in. Clinchers), 2 h.p. British Standard, 2 h.p. Simms, 3 h.p. Automotor, 2¾ h.p. M.M.C., 2¾ h.p. Excelsior, 2¾ h.p. Antoine, 2¾ h.p Ormonde, and 2¾ h.p. Kerry.

HALIFAX. — Twelve twin Rexes, some like new; no complicated speed gears required; reduced price £19 19s.

HALIFAX.—3 h.p. Rover, 26 by 2¼in. Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U. two-speed gear, and sidecar; £25.

HALIFAX. — 5 h.p. Rex, Longuemare, trembler coil, Clincher tyres, Fish-back belt; no offers; £16 16s.

HALIFAX.—1906 3½ h.p. Brown, vertical, M.O.V., Clincher, 2¼ tyres, Longuemare, trembler, frightens policemen; £19 10s.

HALIFAX.—3½ h.p. 1906 Minerva, non-skid to rear, a grand winter's mount; £19 19s.

HALIFAX.—4 h.p. Atelier, 26 by 2¼ Dunlops, spring forks, long and low; bargain, £17.

HALIFAX.—4 h.p. Coronet, 26 by 2¼ Dunlops, Roc model frame, plating and enamel as new; £16.

HALIFAX.—Kerry, 3½ h.p., vertical engine spray, very fine condition; £18 10s., perfect order.

HALIFAX.—3½ h.p. Ariel, Minerva engine, Clincher A Won tyre, spray, girder forks, really good; £17 10s.

HALIFAX.—4 h.p. twin-cylinder Werner, 26 by 2¼ Michelins, very smart mount; £18.

HALIFAX.—2¾ h.p. F.N., spray, 26in. wheels, vertical engine, very speedy good condition; £14 10s.

HALIFAX.—5 h.p. twin Bercley, practically new, twin Brown and Barlow carburetter, 26 by 2½ Clinchers, everything of the best; £21.

HALIFAX. — 3½ h.p. N.S.U., magneto, spring forks; this is marvellous value; £24; new non-skid to rear.

HALIFAX.—2½ h.p. Triumph, vertical, lightweight, trembler coil, fine order and condition; winter price £14.

HALIFAX.—2½ h.p. Jap lightweight, 26 wheels, spray, only done ten miles for tuning up; £23.

HALIFAX. — 1907 3½ h.p. Rex, spring forks, footrests, 2¼ tyres, practically new, magneto ignition; £23.

HALIFAX.—3½ h.p. Rex, 22in. frame, vertical engine, trembler, good order; snap this, £11 10s.

HALIFAX.—2 h.p. Minerva, mechanical valves, spray carburetter, magnificent climber; only wants seeing; £8 10s.

HALIFAX.—6-7 h.p. twin, Speak very long and low, three months old, can be driven at a walk; £27.

HALIFAX.—See Car and Tricar columns for value; exchanges wanted; liberal allowances.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments; no extra charge.—New address, 16, Westgate, Halifax. Telephone, 766. High grade machines purchased for spot cash.

THE ONLY GEAR - - -

that has 5 years of experience behind it is

THE PHŒNIX Two-speed Gear.

£7 10s. to £8 15s.

Up to 5 h.p. Belt or Chain

Lists by return.

PHŒNIX MOTORS LTD.,
Blundell Street, Caledonian Road, London, N.

Stanley Dermatine Motor Belt

IS THE BEST BELT OF THE YEAR

Has carried everything before it by winning every open Competition.

NO OTHER BELT HOLDS SUCH A RECORD.

HUNDREDS OF TESTIMONIALS.

NOTE THE PRICES.

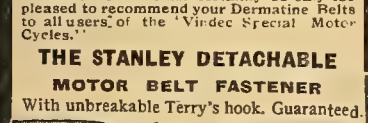
⅝in.	¾in.	⅞in.	1in.
1/2	1/4	1/8	1/11 per ft.

POST FREE.

A SEVERE TEST.—Mr W. H. Wells writes: "I feel that it is only just to let you know how pleased I am with the Stanley Dermatine Belts which were used on all of the six 'Vindec Special' Motor Cycles in the recent six days' thousand miles reliability trials. As far as I am aware these belts gave no trouble whatever, and one belt only was used on each machine throughout the trials. On my own personal machine I only found it necessary to take out half an inch from the start to the finish, and at no time was I troubled with the belt slipping or tearing out at the ends. I shall certainly be only too pleased to recommend your Dermatine Belts to all users of the 'Vindec Special Motor Cycles.''

THE STANLEY DETACHABLE MOTOR BELT FASTENER

With unbreakable Terry's hook. Guaranteed.



(Made under Simplex Patent.)

At last a perfect detachable motor belt fastener. In sizes ⅝in., ¾in., 1in., 1/- each. Wholesale and Retail

The New Stanley Dermatine Motor Belt Co., 32, London Road, Bromley, Kent.

The "MABON" FREE ENGINE PULLEY & CLUTCH

enables your machine to climb hills which otherwise it would not. Guaranteed to start a 3 h.p. motor bicycle with rider mounted on any steep hill from standstill. Fits any machine without alterations.

Price **55/-** complete.

Order early to ensure prompt delivery.

Agents: Service Motor Co., 292, High Holborn, W.C.

MABON MOTOR WORKS,
54, High Road, North Finchley, N.

SIDECARS AND FORECARS.

MILLFORD Double Cane Forecar, seats two, wind screen; £9, or offer.—190, Mellison Road, Tooting.

STAMFORD HILL. — Try one of our famous rigid sidecars, 24in., 26in., and 28in. wheels, right and left-hand side, brand new, £4 18s. 6d., to fit any frame; open frame light tricar chassis, 26 by 2¼in. tyres, £6 17s. 6d.; splendid trailer, Dunlops, £2 15s.—128, High Road, Tottenham.

TRAILERS.

MILLS and Fulford Art Cane Trailer, red upholstered, Dunlop tyres; £2 10s.—Smith, Ford Street, Saint Mary Nottingham.

CARS FOR SALE.

TWO-SEATED 6 h.p. Car, to be sold cheap.—6, Wood Street, Leamington.

ROVER 8 h.p. Two-seater, hood, screen, lamps; £125.—14, Regent Grove, Leamington.

HALIFAX.—13-16 h.p. Reno, the new car, simplicity itself to drive, yet powerful; come and see; cash or exchange.

HALIFAX.—15 h.p. Humber, new last March, hood and curtains, mud screen, headlight, side lamps, electric tail lamp, spares, almost equal new; £250.

HALIFAX.—8-10 h.p. four-cylinder Humber, side entrance, 760 by 90 tyres; cost £270, accept £170 for quick sale; trial by appointment.

HALIFAX.—8 h.p. Argyll, two-seater, three speeds and reverse, honeycomb radiator; £57 10s.; tricar or motor cycle part payment.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

HUMBER 8-10 h.p. Four-cylinder Side entrance Car, good running order; sacrifice £130.—Premier, Birmingham.

12-14 h.p. Four-cylinder Humber, tonneau, Cape hood, very fine car; £97 10s.; tricar part.—Dymchurch, Mellison Road, Tooting.

20-24 h.p. Eagle Side Entrance Car, four-cylinder, perfect condition; £85, or offer.—Dymchurch, Mellison Road, Tooting.

6 h.p. Smart Two-seater, almost new condition, artillery, Dunlops, lamps trial; bargain, £38. — 1, Shaftesbury Avenue, Roundhay, Leeds.

6½ h.p. Aster, three speeds and reverse, cardan drive, brass lamps, etc.; any trial; bargain, £48.—1, Shaftesbury Avenue, Roundhay, Leeds.

16-20 h.p. Four-cylinder Very Smart M.M.C. Car, with detachable canopy, splendid goer; only £160; take small two-seater or Eagle tandem part exchange.—Lumb, motorist, Rochdale.

SACRIFICE genuine 6½ h.p. Aster, two-seater; in excellent running order, climb anything, new Dunlop tyres, fast, and smart car; price £22, worth £60; any trial.—Alvaston Motor Works, Derby.

SIMMS Tonneau Four-seated Car, 810 by 90 artillery wheels, Dunlops, cardan drive, three speeds, reverse, very good condition, running order; £38 10s.; good tricar part.—128, High Road, Tottenham.

HOTELS AND APARTMENTS.

WHEN Visiting London stay at Waverley Temperance Hotel, 17, Euston Square. Bed, breakfast, attendance, from 3s.

MOTOR EXPERTS.

W. W. GENN gives advice on second-hand purchases. Get your new mount through him, and have it "tuned" free: any make; Minerva a speciality.—Below.

W. W. GENN personally overhauls, repairs, or tunes up your motor cycle or car, and builds to specification; charges moderate. — Motor Works, Gap Road, Wimbledon.

ORDER EARLY

Your 1908 machine and remember we can supply any make on the market. Second-hand machines taken in part payment. Liberal allowances. List of Second-hand mounts in stock, all guaranteed in perfect running order.

BRAND NEW 1907 MACHINES.

MINERVA, twin, spring forks, 2¼in. Continentals, exactly as per maker's catalogue, M.O.V. £36
MINERVA, twin, 2¼in. tyres, brand new £34
MINERVA, 3½ h.p., magneto, spring forks, new £35

1907 PRACTICALLY NEW MODELS.

REX DE LUXE, magneto, twin tyres, Roc free engine £30
REX DE LUXE, magneto, twin tyres, Roc free engine £31
REX, twin, 1907, low, spring forks, tremblers £28
TRIUMPH, spring forks, magneto, a beauty £32
RUSHWORTH, low built, 2¼in. Clinchers, special finish £17
F.N., four-cylinder, magneto, spring forks £19

IDEAL LIGHTWEIGHTS.

ZEDEL, practically new, 2 h.p., about 75 lbs. £11
ARIEL, 2½ h.p. Watawata, about 80 lbs. £12
J.A.P., 2½ h.p., newly done up, about 70 lbs. £10

YOUR ORDINARY CYCLE AND £4 4s. secures

MINERVA, 1¾ h.p., very reliable.
MINERVA, 1¾ h.p., spray, perfection itself
MITCHELL, 2½ h.p., trembler, spray.
HUMBER, 2 h.p., new, 2in. Palmers, spray
QUADRANT tandem, 3 h.p. free engine.
SINGER, 2 h.p., magneto, vertical.

£3 DOWN SECURES

HUMBER, 2¾ h.p., chain drive £11
FAFNIR, 3 h.p. 26in. wheels, vertical £14
LLOYDS, 2¾ h.p., B and B, trembler £12
M.M.C., 3 h.p., 26in. wheels, vertical £12
MINERVA, 2 h.p., spring forks £9
ANTOINE, 2 h.p., vertical, Long. carb. £8

Exchanges or deferred payments on any of the under-mentioned—

ARIEL J.A.P., 6 h.p., B. and B. carb. £23
REX, 5 h.p., twin, low built, 1906 .. £19
REX, 3½ h.p., 1906, spring forks £15
REX, 1905, very low built, a beauty £12
REX, spray, trembler, 26in. wheels .. £13
MINERVA, 6-7 h.p., very low built .. £22
MINERVA, 2¾ h.p., vertical, M.O.V. £12
PHŒNIX, Minerva, 2½ h.p. £10
OPEL, 1906 model, vertical, M.O.V. £16
QUADRANT, 3 h.p., spray, spring forks £11
QUADRANT, 3 h.p., new cylinder fitted £10
ARIEL, 3½ h.p., B. and B., 26in. wheels £16
HUMBER, 2¾ h.p., trembler, spray .. £11
LLOYDS, 2¾ h.p., B. and B., trembler £12
J.A.P., 3½ h.p., B. and B., spring forks £16

These are special offers in place of the Christmas goose we usually give? and we trust readers will give same every consideration.

TRICARS.

TRENT, 4 h.p., water-cooled, open frame, two speeds £25
REXETTE, 10 h.p., open frame, two speeds, wheel steering, sprung .. £46

Exchanges entertained for any of the above. You will be wasting money if you fail to write us.

Astonishing prices for spot cash.

No extra for deferred payments.

A large quantity of ordinary cycles, will give in part payment for motors or sidecars.

Don't forget the address:

MAUDE'S Motor Mart,
Lilly Lane, HALIFAX.

Telephone { Day - 433. Night - 904.

A PLEA FOR THE LAMP.

You would not dream of running your car or motor cycle without due regard to the quantity and quality of petrol, yet how many when purchasing carbide give the lamp a reasonable chance of furnishing a good, steady, brilliant light by finding out whether the carbide supplied is 100 per cent. carbide or 75 per cent. carbide and 25 per cent. (the proportions may easily be more startling) waste, i.e., decomposed matter and dust.

"G.B." CARBIDE

could not be better, purer, or more resultful if the price was double what it is.

Daily Output, One Ton.

ARE YOU USING IT?
IF NOT, WHY NOT?

2 lb. tins, 1/3 each.
4 lb. tins, 2/6 each.
7 lb tins, 3/6 each.

Of all motor and cycle dealers.

The COUNTY CHEMICAL Co., Ltd., Excelsior Works, BIRMINGHAM.

INSURANCE.

MOTOR Cyclists should write for particulars of inclusive policy covering third party risks, accidents, fire, etc., at a premium of £1 10s. per annum.—Bar Crown Hotel, Ongar.

TYRES.

EXTRA Heavy A Won 26 by 2½ Cover, quite new, unused; 30s; approval, deposit.—Dr. Crisp, Corsham, Wilts.

PETER-UNION Guaranteed New Covers, regular lines, plain £1, studded 32s. 6d.; these prices are less than wholesale. —Woodman's, 55a, West Gate, Peterborough.

HALIFAX.—New 28 by 2¼ inner tubes, 5s. 3d. each; 700 by 65 heavy type, 6s. 9d.; 28 by 2 Palmer non-skid, 25s., done 20 miles; 700 by 65 new Shaw non-skid (Clincher), 45s.; 28 by 2 new Palmer cover and tube, 26s. 6d.—Halifax Motor Exchange, 16, Westgate, Halifax.

STAMFORD HILL. — Sound line first-class tyres by good makers, 26 and 28in. by 2, 2¼, 2½, beaded and wired, at 13s. 9d.; 26 by 2½ butted tubes, 9s. 9d.; 28 by 2¼ studded band, wired cover, 22s.; three 26 by 2½in. Fisk tyres on rims, 30s. each.—128, High Road, Tottenham.

REPAIRERS.

IRIDIUM Champion Contacts; any part fitted, returned same day; 1s. 1d. each.

IRIDIUM Champion Contacts, warranted pure; special trimmers for polishing iridium, 9d.; no filing required.

IRIDIUM Champion Contacts; hundreds in use. — Williams, 16, Wellington Street, Woolwich.

BELLENGER will tune up your machine to give full power; moderate charges.—Queen's Buildings, Old Bailey.

CRACKED Water Jackets of motors successfully repaired by Lea's metallurgical process.—Lea and Son, engineers, Runcorn.

COMPRESSION.—Cylinders re-bored and new pistons fitted complete; send for our booklet, giving prices for this work.—Laystall Works, address below.

NOW is the time to have your motor cycle overhauled. We have the finest repair works for motor cycles in London, with up-to-date machinery; estimates free for repairs or alterations of every description.—Laystall Works, address below.

NEW Cylinders supplied for any make of engine. For all motor cycle repairs, replacements, pulleys, valves, gears, please let us quote you.—The Laystall Motor Engineering Works, Ltd., 27 and 29, Laystall Street, Rosebery Avenue, E.C.

IGNITION Coils and Accumulators, any make repaired and charged at lowest prices; lists free; work guaranteed. Sole agents for Hagen accumulators. Tel., 95X.—The Victoria Garage and Electrical Co., Coventry.

PULLEYS specially made to any diameter for any make of machine from 7s.; delivery the day following receipt of order.—Laystall Motor Engineering Works, 27 and 29, Laystall Street, Rosebery Avenue, London, E.C.

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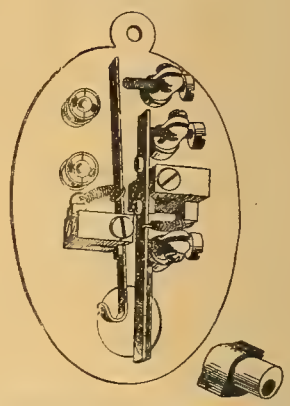

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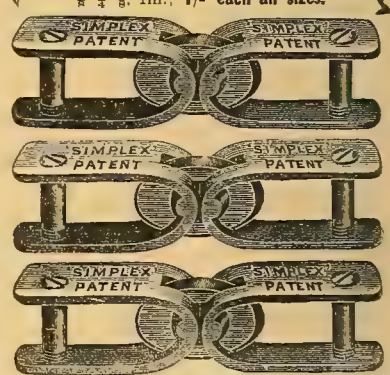

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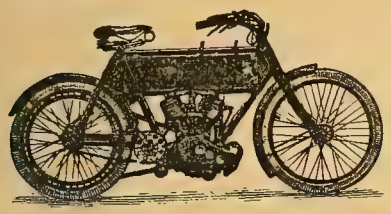

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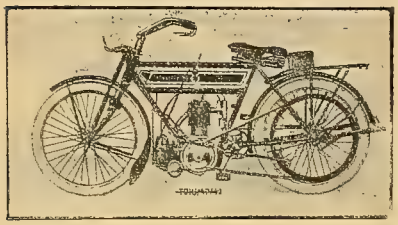

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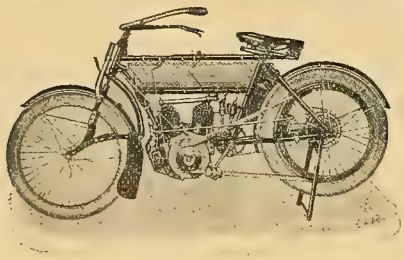

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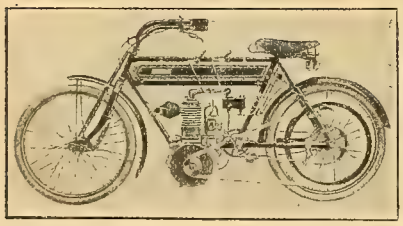

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HALIFAX.—"Perfection" belting, new principle, ⅜in., 10d.; ½in., 1s.; ⅝in., 1s. 2d.; 1in., 1s. 4d. per foot; 3s. allowed for your old V belt to popularise.—Below.

HALIFAX.—8ft. 6in. by ⅝in. Alpha belt, 7s. 11d.; 6½ h.p. water-cooled Darracq, clutch, £9; pair plated Salsbury headlights, cost £15, take £6 10s.; motor cycle stand-carriers, 5s. 6d.; new gas lamps, with hood, 4s. 9d.; accumulators (want repairs), 1s. 6d. each.—Motor Exchange, 16, Westgate, Halifax.

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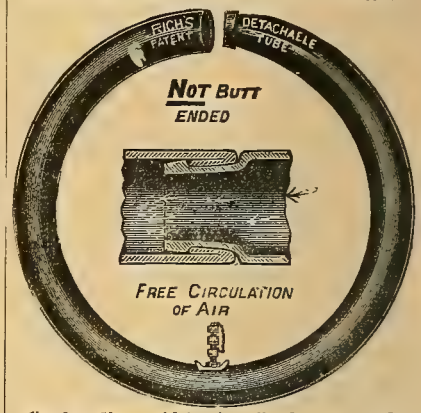
Please write for our 1907 Catalogue.
Rich Detachable Air Tube.



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Special price list of all sizes on application.

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You, sir, require a bicycle that looks well in a crowd of the ordinary type?
That carries a distinctive and classy appearance?
That instantly attracts the attention of the casual observer?
That will do all that is claimed for it?

ERIC S. MYERS

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Write and make an appointment—then order early

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THE KENT THREE-SPEED GEAR.

This gear has been re-designed and improved. Can be fitted to Tricar in two hours. Price, **£11-11-0.** List Free. Discount to Trade.

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THE MOTOR CYCLE

Vol. 6. No. 250. CONTENTS. Jan. 8, 1908.

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Lubrication.

THE articles and correspondence which have appeared in *The Motor Cycle* from time to time on the subject of overheating all seem to point to the fact that the lubrication of air cooled motor cycle engines is inadequate. Even if the amount of oil in the crank case is correct, does it reach the piston in a sufficiently regular manner? We all know that if there is sufficient space between the flywheels and crank chamber it is possible to give one or two extra charges of oil just before climbing a stiff hill, and so improve the speed and pulling power of the engine; but the attendant result is a smoky exhaust and dirty valves and combustion head. Splash lubrication has not been found sufficient on many water cooled engines of different makes; it is therefore reasonable to suppose that an additional method of lubricating the piston and cylinder of an air cooled engine might meet with considerable success. We are loth to advocate any additional complication, because the tendency ought always to be in the direction of simplifying the design and construction, but, lubrication being such an important item in the perfect running of a motor cycle engine, the subject cannot be too much ventilated.

Some time ago we made a suggestion that an additional oil feed pipe might be tried, by means of which a drip feed of oil could be conveyed direct to the cylinder walls, and on to some part of the cylinder covered by the piston during its stroke. The usual position for the oil feed is level with the gudgeon pin when the piston is at the lowest position in its stroke, but some experiment would most probably be necessary to find the best position for the pipe where it would allow the oil to flow without being blown back. We had some experience with an oil drip feed to the crank chamber of a motor bicycle engine about three years ago, and always found it gave good results if regulated according to the temperature. Why should not the same method be successfully applied to the cylinder? The extra complication would be hardly worth considering, and if at any time the lubricator got out of order there would always be the dash system to fall back on.

What has helped us to form the idea that lubrication is often inadequate is the constantly increasing size of motor bicycle engines and the multiplicity of cylinders. The smaller engines may get sufficient lubricant at the top of the cylinder, but it is questionable if the large ones do. The oil is carried up the cylinder walls by the piston, and it is thus only reasonable to suppose that the further it has to be carried the greater difficulty it has in getting there.

Another reason why the cylinder should be more carefully lubricated is the fact that the top of the cylinder is more subjected to wear than the middle or bottom, and this is just the portion in the case of the dash system which gets the least lubricant. Examine the piston of any petrol engine at the end of, say, 3,000 or 4,000 miles, and it will always be found that the top ring is more worn than the lower ones. This arises partly from other causes than lubrication, but lubrication (or lack of it) must play the major part in the wear.

We much regret that we have had no opportunity of trying the method of lubrication suggested, but if any of our readers have done so we shall be glad to hear their opinions.

Motor Cycles for Industrial Purposes.

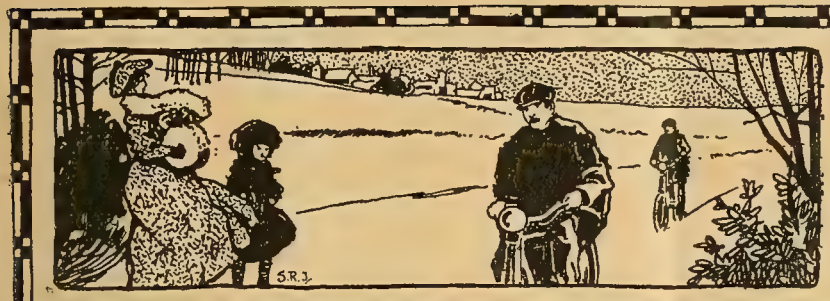
IT has always been a source of wonder to us that the much abused tricar which some people see fit to condemn in this country is not more used for industrial purposes. It is true that the proprietors of one leading London evening paper have used this type of vehicle for several years with no small amount of success, but this is one case only, and the fact remains that in England very few, if any, others have seriously considered the possibilities of the tricar for the rapid delivery of small parcels. A recent visit to the Berlin Motor Show convinced us that German business men are far more fully alive to the value of this cheap and efficient little vehicle for the delivery of goods. The German capital is said to be, if anything, ahead of London as regards the use of light motor vehicles for business purposes, and our visit has left us with the impression that this is actually the case. Be that as it may, there is absolutely no doubt that half of the delivery machines are motor cycles. The most popular type is the Cyclonette. Now, the Cyclonette has been seen over here, but it has never really caught on, since beyond hearing of the importation of one solitary specimen, we have heard no more of it. It is a three-wheeler, with a single steering wheel in front and two trailing wheels, the front wheel carrying the air-cooled engine, driving chain and epicyclic two-speed gear. It is not attractive to look at, but there is no doubt that it does its work, since it is far the most popular type of light delivery tricycle in the German metropolis. The number seen flitting through the streets is little short of surprising, and during a four days' visit only one was seen to be in difficulties. In 1906 the N.S.U. Co. exhibited a machine built on these lines at the Stanley Show, but, curiously enough, no one seemed to take very much interest in it. In Berlin a similar vehicle of another make is also to be seen. So mindful of the old saying that imitation is the sincerest form of flattery, it seems that there is really something in this type of vehicle, since no less than three distinct makes of the same type are running. Other motor cycle carriers adhere more strictly to conventional motor cycle lines, and of these the Magnet (shown last November at the Agricultural Hall) and the Adler seem to be popular. Some of the tricars are provided with only one speed, but they are geared low, and, since the traffic in Berlin is only half what it is in London, they appear to find it sufficient. This year yet another type has come into vogue, and that is the electrically driven tricar introduced by Siemens-Schükert and Co.—an exceedingly neat vehicle sprung fore and aft, which bids fair to meet with great success. This is but a brief reference to what the German business houses are doing, but it seems to us that over here a great deal more might be done with tricars by small tradesmen, who cannot run to the capital outlay or to the running expenses of an expensive delivery van, though in Berlin the smaller vehicles are used by the largest commercial houses. Several British firms are able to supply tricars for business purposes. Among these may be mentioned Lagonda Motor Co., Bradbury and Co., Phœnix Motors, and Riley Cycle Co. In addition, among the foreign ones are the N.S.U. Motor Co., the Ivry Co., and the Laurin and Klement Motor Agency, while Magnet delivery tricars are also represented. Our commercial houses have thus the matter in their own hands, and if they wish to try the effect of motor delivery on a small scale in their business they have the opportunity.

One of the Special Singer Tricars built for transport purposes on the Egyptian desert.

Readers who wish to communicate with Lycett's Rawhido Belt Co., Ltd., should note that their address is now Bromley Street, Birmingham.

A new substance has been brought out by the Pulley Stone Co., 11, Manor Court Road, Hanwell, London W., which consists of a cement which is intended to be applied to the inner surface of motor cycle pulleys. After application the cement becomes hard like stone and greatly adds to the adhesive power of the belt. The material has already been tested on a motor bicycle, and has been said to give great satisfaction. We hope shortly to try some of it ourselves and will report on it in due course.

We have received a booklet from the Campagnie des Magnetos Simms-Bosch, 23, Store Street, W.C., which deals very fully with the "D.A.2" Bosch magneto, for motor cycle engines. A very careful description is given of the working of the machine, and full instructions are given regarding the fitting, timing, the locating of faults and the best way in which to keep the magneto in working order. Every part of the magneto from the armature to the smallest screw is listed and numbered so that users of the magnetos can instantly obtain spare parts with a minimum of trouble. The company will be glad to send one of these booklets to any of our readers who desire one.



To Switzerland and Savoy by Motor Cycle.

By H. HOWARTH.

WE had for long anticipated a holiday abroad, but the deciding cause of my friend and I taking our annual holiday in Savoy and Switzerland was the excellent article in *The Motor Cycle* by Mr. Douglas Fawcett on his "Ideal Tour" to Dauphine. This tour we should probably have followed had time permitted, but being unable to spend more than a fortnight across the Channel, we decided on a shorter route.

It will be of interest to others similarly placed to know that neither my friend nor myself are conversant with the French language, yet with the few phrases necessary to order rooms, meals, and petrol, and to enquire the way, which anyone can pick up easily from the usual guidebooks, we managed to get along without trouble. Though our ignorance of French occasionally gave rise to situations not unconnected with "northern humour," it never once caused us to forego anything we wished to have. Certainly no one need refrain from following our example on account of the language.

After the usual fascinating preliminaries of studying maps and guides, and arranging programmes (which never, by any chance, are carried out), we were at last ready for the start. We resolved to travel both on one machine, my friend's cycle being considered too low-powered for the work which would be expected of it. To this end a spring seat was arranged, tandem fashion, on a reinforced luggage carrier over the rear wheel of my own new mount—a 5 h.p. Vindec Special, fitted with the maker's two-speed gear and free engine clutch.

I may mention here that the machine took little notice of its double load, and that throughout the tour no mechanical troubles were experienced. Its other details were Simms-Bosch gear driven magneto, Truffault suspension, Peter-Union 26 × 2½ tyres (back studded), and Dermatine belt, gears 4¼ and 8½ to one.

An Ambitious First Day's Ride.

Acting on advice received from the A.C.C. Touring Bureau, we had decided to proceed to France by way of Southampton and Havre, making the former town our destination for the first day. From our home in North-east Lancashire to Southampton in one day is rather a far cry; but we had confidence in our mount, and further to reduce chances of failure, we arose at the unearthly hour of 3 a.m. on a bright Friday morning in July, and, having made all trim and taut the night before, were on the road at half past three prompt. The morning was clear and a trifle cold—ideal weather for the engine, which would have ripped along at a great pace had the roads permitted; but it so happened that our initial thirty miles run to Manchester included stretches of atrocious *pavé* as bad as anything we afterwards encountered in France. Arrived in Cottonopolis a diverting incident occurred, for in turning an abrupt corner the steel studs on the back tyre refused to grip the setts, and the machine performed the first movements of a dreamy waltz. Being unable to reverse, it then lay down, and I found myself sitting on my passenger in the deserted thoroughfare, surveying a fractured foot lever and a pathetic pedal which had become detached in the *mêlée*. The lever formed a part of the rear belt rim brake, but so handy and powerful was the hand applied brake that the loss of the other was never felt throughout the tour.

After this our ride was monotonously successful. 5.30 a.m. saw us passing through Newcastle-under-Lyme; at 7.45 we had to wake up a Wolverhampton cycle agent to obtain petrol; 8.30 to 9.15, breakfast at Kidderminster; then through Worcester, Cheltenham, and Cirencester to Devizes, where, soon after one o'clock, we stopped for a meal, reaching our destination, Southampton, at 3.30 p.m.—260 miles in twelve hours.

Feelings after a Long Day's Ride.

Some readers may think that streaking the map in this fashion is a very exhausting proceeding, and one devoid of pleasure. I can assure such that they are mistaken. The pace was not uncomfortable, and we had ample opportunity to admire the country, and enjoy the sweet perfumes so prevalent in rural England in July. Also the frequent changing of position—about fifty miles on the rear seat then fifty in the saddle—added a welcome variety to the run.

Needless to say, we were both extremely proud of our first day's performance, and we duly impressed (by wire) the unfortunates who were left at home.

Crossing the Channel by the midnight boat, we arrived in Havre at 7.30 on the Saturday morning. I find that many motor cyclists hold aloof from touring in France through a fear of having to go through certain vague but complicated formalities. To these I think a description of the slight actual formalities will be welcome. First of all, it is highly advisable to join the A.C.C. or some affiliated club. I found the advice and assistance from this source of the greatest value.

The Club's agent at Havre, who, by the way, is the proprietor of a fine motor garage, sent a man to the quay to meet us. This representative saw to the unshipping of the cycle, then taking my Customs card, or "triptych" (provided free by the Club), he interviewed the Customs officials, and, in an incredibly short time, returned to say that the proceedings were finished, and

To Switzerland and Savoy by Motor Cycle.—

would we go with him to the garage where we could obtain the necessary *permis de circulation*. We did so, and M. Burton, the Club agent, made out the necessary forms; one permitting the motor cycle to be used in France, and the other certifying that I was capable of driving, this latter qualification being taken for granted without ocular demonstration. The cost of the licenses was 15 francs, this including tips to officials and M. Burton's commission. It will thus be seen that we did not even come in contact with any French officials, and there were no "formalities" at all.

The Start on French Roads.

From Havre to Paris the run was uneventful. As a National Fête was in progress, we remained in the capital a couple of days, leaving to commence our tour proper on the Tuesday morning. We decided to abandon the task of riding according to a pre-arranged programme, each day riding as far as circumstances would allow—the "circumstances" including occasional late rising, and sundry stoppages to view the various antiquities and places of interest *en route*. At Fontainebleau the magnificent palace and grounds claimed attention, and we rested here some time in order to recover from the effects of fifty-five kilometres of execrable road. Leaving here, our road led through the fine forest of Fontainebleau. Here as one rides for miles through the silent stretches of forest, it is easy to understand the feelings which prompted the writers of the old-fashioned fairy stories, and gave rise to the romantic tales of witchery and enchantment which the children so delight in. Reflections on this theme were suddenly cut short, however, by a prosaic puncture—a fine large horseshoe nail having penetrated between the studs of the rear cover. In the tropical heat the repair of this was not an attractive prospect. But we made the best of it. Wheeling the machine under the trees, we tackled the job in turns, one smoking a cigarette and giving advice whilst the other toiled. We finished in three cigarettes, and, having thoughtfully taken the first smoke, I was not in the least fatigued.

On again to Sens and Villeneuve-l'Arqueveque, where we stayed the night. In the morning, after admiring the quaint old church, we once more took the road. The surface was now excellent, and we had our first experience of the fine *routes nationales*, long and straight, as far as the eye can reach, across fertile and level country. On each side is a broad strip of grass land, in the centre of which are planted trees, ten metres apart. On these roads, in addition to the kilometre stones, little intermediate stones are placed every 100 metres.

Checking the Speed.

At first we enjoyed it, but after a time the amusement of checking the kilometres by watch (fifty to sixty seconds per kilometre) began to pall, and we soon became heartily tired of the long straight stretches. More than once the rider on the rear seat fell asleep, the peculiarly insistent sound as we passed the trees forming an efficacious lullaby. This sound was caused by the crackle of the exhaust being echoed from each tree as we passed, leafy branches overhead giving a rhythmic sh-sh-sh, which became quite tiresome. Towards evening, to our great relief, this flat monotony gave place to the mildly pretty Côte-d'Or. In this province we often found cherries and other fruit trees growing by the roadside, and the slow moving waggons, drawn by oxen, which we frequently met, were mostly laden with market produce, giving evidence of the great fertility of this sunny land. We spent the night at Dole. Here, during our after dinner walk, we discovered a circus—

In the Juras.

one of the good old-fashioned sort—and finding time hung heavily on our hands, we paid our franc apiece and entered. True to the traditions of such places, the seats were hard planks, covered with an apologetic sort of winding sheet. But, in spite of this discomfort, we found the experience highly entertaining. The jokes of the French clown, of course, we could not understand, nor could we judge their quality by the reception accorded them by the audience, for the French are not at all demonstrative at a performance of this kind, and the hearty roars of laughter which nearly always greet the antics of the clown at an English circus are entirely absent here. Again, the applause which greeted the performances of the equestrians was always about equal in volume, irrespective of the quality of the performance, and we were astonished to see, seated in a prominent position, a solemn visaged individual who, so to speak, conducted the applause! Clapping his hands a few seconds after each "turn," and then holding up one hand as a signal to his followers to stop, this man was the most amusing figure in the place. We afterwards were told that this system of turning on the applause, as well as the limelight, by the management is quite common in French places of amusement.

(To be continued.)

Variable Gears at the Stanley.

By B. H. DAVIES.

"WELL, Mr. Davies," I was greeted by a trade rider on entering the Stanley. "Your pet hobby's rather off. There's hardly a variable gear in the show!" "Rubbish!" was my reply. "There's scarcely a single geared machine in the show, and my wildest hopes are surpassed." There was but one important innovation at the Stanley which was almost universal, and that was the adjustable pulley, affording a variation of gear ratios between, say, 4 to 1 and 6 to 1. These pulleys have two main disadvantages—that you have to dismount to alter the gear ratio, and, further, that it is not possible to get a really low gear with them. On the other hand, they are very cheap, most of them are absolutely reliable, and they need no fitting. They will very greatly retard developments in two-speed gears for a year or two unless the side-car craze balances them, and compels makers to bring out a gear more suited for passenger work than any pulley gear can be. But to the thoughtful they are a very eloquent pointer as to the inevitable future of gears possessing a wider range and capable of being operated from the saddle. An adjustable pulley is a substitute for a two or three-speed gear, and obviously a very makeshift substitute at that; yet because it is cheap, reliable, light in weight, and very simple to fit it is selling in thousands. Moral: A two-speed gear incorporating these four advantages, plus a greater range of ratios and "saddle operation," would be a veritable gold mine.

Nevertheless, these adjustable pulleys are variable gears in embryo, and I think their enormous popularity justifies the crusade which I and a few others have been waging.

An Adjustable Belt Fastener.

Collier and Sons showed an accessory which will become indispensable to all users of these pulleys. Their new adjustable belt fastener entirely does away with the need of inserting or removing short lengths of belt when the gear is altered, and so destroys the main drawback to this type of gearing. I must add one word of warning about those pulleys in which the loose flange and the locking ring screw up to each other on right and left-hand threads. It is obvious the screwing together of these two loose parts makes a very tight lock at any time. When it is further remembered that whenever the engine is driving, the belt is pressing the flange against the locking ring, and tightening them still more, it will be understood there is grave danger of a very fierce jam. I have had a pulley of this type, which it was a rare business to unlock, even by detaching the pulley and gripping half of it in a vice—in fact, what I really did in this instance was to pay nearly £1 for a heavy fixed pulley, when I might have bought a light fixed pulley for 5s. At the same time, if well designed and made this type is quite satisfactory.

The show further contained a large number of variable pulleys fitted with mechanism for operating the changes from the saddle. On a show bench these are very attractive, and, without condemning any by name, let me briefly indicate the difficulty of designing a gear of this sort efficiently. In all devices of the sort at least one of the pulley flanges must be loose on the barrel or spindle. The pressure of the belt will tend to force this loose flange (or two, if both are loose) outwards. This outward pressure is technically known as "thrust." Wherever this thrust is found great friction is set up. To put it crudely, it will pull the crankshaft and flywheels over to the pulley side of the engine, and there will be great loss of power and efficiency. There are two ways in which this thrust may be modified or abolished:

(1.) It may be reduced to a negligible minimum by the provision of ball bearings to take the thrust.

(2.) The loose parts of the pulley may be locked together at four or more ratios, when the pulley will revolve as a solid whole, and there will be no more thrust than with an ordinary plain pulley or a locked adjustable pulley of the ordinary "dismount-to-alter-it" type.

Side Thrust on Variable Geared Pulleys.

Every efficient variable pulley of the "from-the-saddle-operated" type must allow for this thrust in one of these ways. A careful examination of such pulleys as the Osborne four-speed will show what pains some designers have taken to minimise or destroy thrust friction. Other exhibitors will tell you, "We don't tie you down to four, or six, or even a dozen gears; our pulley gives you as many as there is room for!" Face to face with a claim like this, enquiry should always be made about the thrust. I noticed one otherwise smart device had no locking devices and no thrust bearing, but that all the end pressure was taken by the lever actuating the loose flange, and I asked the demonstrator how he justified this. "You see that collar sliding on the crankshaft?" I saw it. "If you knocked that collar all cock-eyed on the shaft what would happen?" "I suppose it would 'bind.'" "Yes, sir, that's exactly what it does. You see the belt presses it out of truth with the axis of the shaft, as the belt only touches one half of the pulley, and so it binds; and in case the binding wouldn't keep it in place, the operating lever makes an extra stop." This, of course, is entirely fatal to efficient working.

Real Hill-climbing Work.

A second point about all these pulleys is that to have a separate lever for the jockey pulley is very tiresome. Some devices use a second lever; some mount the jockey on a spring, which is supposed to actuate it automatically. Neither of these plans is satisfactory. Either the spring has insufficient tension to keep the jockey taut up to its work or else the tension is too great, and causes unnecessary friction. The Osborne people have greatly improved their jockey operation, and the double action of the Chater Lea lever is very attractive. I must say, however, I have yet to see a gear of this pattern I like so well as the one which Capt. Low formerly exploited, and called, I believe, the Lindsay-Scott gear; but it was not suitable for bicycles.

Variable Gears at the Stanley.—

Apart from pulley gears, there was really a very good show of other types of variable gears, and no doubt a great number will be sold to meet the demand for greater climbing facilities in connection with the sidecar. And in this connection I have another word of warning to add. Almost any sort of gear will do for sidecar work if the rider merely wishes to toddle up and down the Brighton Road and similar fairly level highways. Have we not all had much fun with single geared 2¾ h.p. passenger outfits on such roads? And nowadays 5 h.p. and 7 h.p. cycles are available. But for real hill-climbing work with a passenger no pulley gear which is attached direct to the engine-shaft is really any use. The belt will not stand the load for one thing, especially on a small diameter engine pulley, and a gear low enough cannot be obtained with two pulleys and direct drive. I have been driving a chain-driven twin and sidecar this summer, and my low gear was 8½ to 1; yet often in touring I could well have done with a lower gear still, and yet no pulley that is driving direct will give a gear anywhere near so low as 8½ to 1. It is all a question of where one wishes to go, and of whether one is willing now and again to make one's passenger walk a hill. Something of the same reasoning applies to belt-driven hub gears. With them the low gear may be 11 to 1 without allowance for slip; but with these the belt takes back what the hub reduction gives, and it will refuse to pull a heavy load up a really steep hill. For go-anywhere sidecar work you must have the chain drive and a low bottom gear of, say, 8 or 9 to 1, with a twin-cylinder engine. I cite Mr. Hooydonk's experience and policy in support of these remarks. He long ago wholly abandoned the belt for passenger work, even though his gear permitted a low ratio of 12 to 1 without allowance for slip. Still, it cannot be denied that without any gear at all or with a belt-driven hub or pulley gear a vast amount of fun is obtainable with light passenger attachments on average roads.

Variable Gears with Chain Drive.

After this preface we find there were very few gears exhibited which met all the requirements of passenger work. There was my well-tried friend the Phelon and Moore, which needs no words of commendation from me after all these years of prominent achievement. I need only say that, though I have no interest in the company, my 1908 order will be my fourth consecutive gear of this make. The Anglian was not on exhibition. The epicyclic gear shown by Brown Bros. is a good thing, and has chain drive. The Fit-all gear may be had with chain drive, and the operating bands on it are, I notice, considerably stronger than in 1907. The Phœnix gear was another absentee, owing, I understand, to a plentitude of orders and work.

Coming to belt-driven gears, the Nala again appeared, and is one of the solidest hubs on the market. A lighter edition of it is now sold for light solo machines. Collier and Sons also staged a light hub gear, not meant for passenger work. The Vindec gear sold to the extent of 110 hubs last year, and is now slightly improved alike in the design of the operating rods, adjustments, and in the protection from ingress of grit to the internal expanding metal brakes, which the makers prefer to external bands for operating epicyclic gears. The 3½ h.p. Vindec Special with two-speed hub is a most attractive little go-anywhere-in any-weather mount. The N.S.U. engine pulley gear has never manifested more than one failing, and that was a slight tendency to occasionally work off its shaft. I was well satisfied that this tendency is efficiently combated in the present models. One machine which I hope will not be hurriedly condemned as a freak embodied an old suggestion of mine. I refer to the 6 h.p. four-cylinder V-engined Douglas. It had in lieu of the ordinary bottom bracket a countershaft with dog clutch gear resembling that on the Anglian chain-driven two-speed countershaft gear. From this countershaft the drive is taken to either side of the rear wheel by means of belts, one of the belts being idle when the other is driving. No friction clutch is necessary with this, as the valve lifter and belt drive amply cushion the gear changes, and the wear and tear on the belts are greatly diminished by using two, of which one is always idle. This design has possibilities. I have left to the last the belt-driven, free-engined hub gear which was most in evidence, *i.e.*, the Roc. There is no doubt all those who are handling it have exceptional trust in its capabilities, and anyone can see that the Roc axle specially lends itself to a gear of the kind. On the Premier stand several machines of different makes, including a Triumph, were staged fitted with this gear. I am promised a trial machine fitted with it, and I hope then to write of its merits from personal experience.

Altogether this year's Stanley was far more interesting and encouraging to us variable gear enthusiasts than any previous motor cycle exhibition.

Reliability Trial in Tasmania.

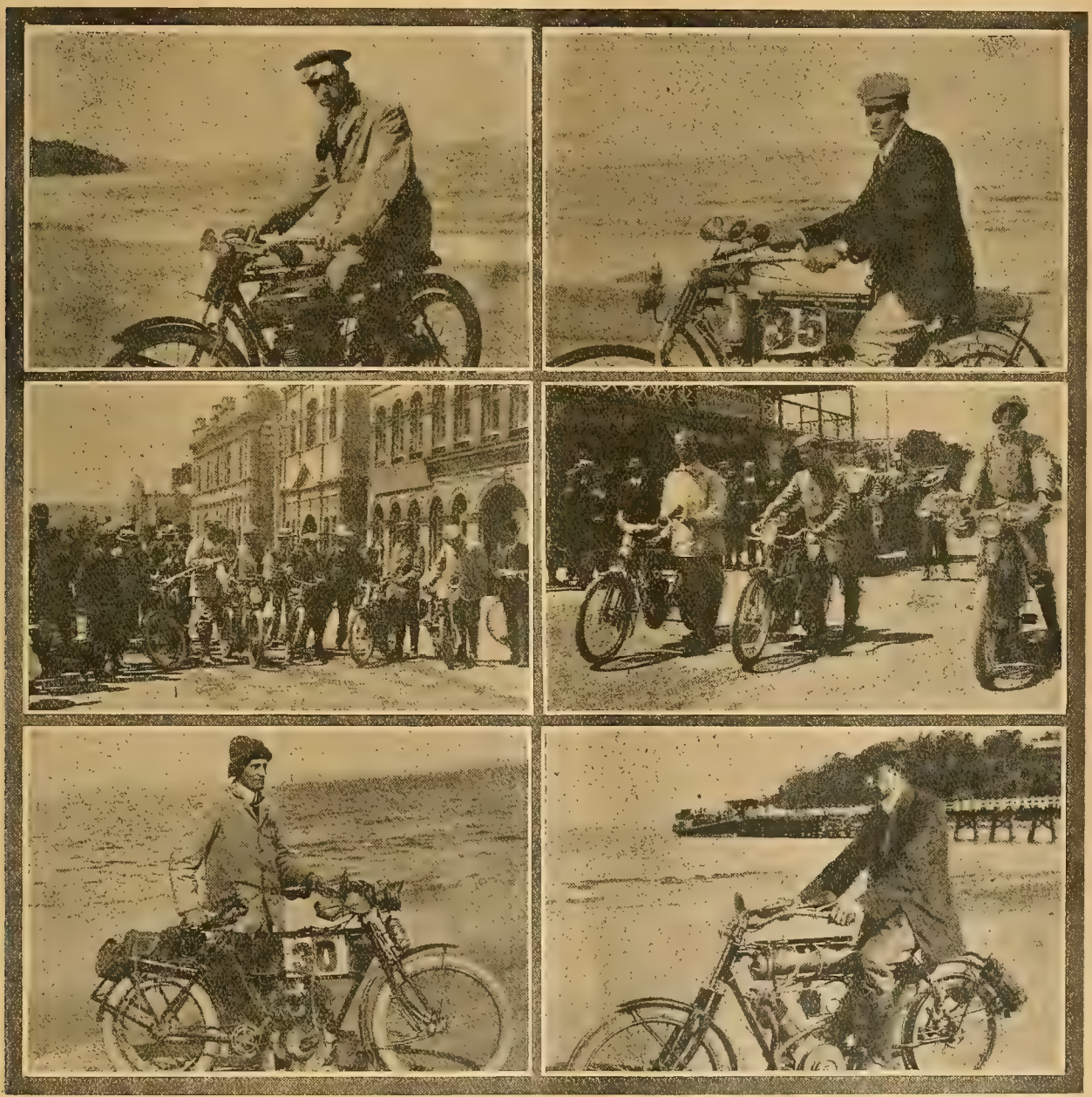
WE have received from Mr. S. Spurling, jun., of Launceston, Tasmania, particulars and photographs of the first motor reliability trial held in Tasmania, which proved to be a great success. In all, thirty-eight cars and motor cycles were entered, the latter being divided into three separate classes. The start was from Launceston on the morning of Saturday, November 9th, and, according to the power of the motors used, times were allotted for covering the 120 miles separating Launceston from Hobart. The small cars and 2 h.p. motor bicycles had to average fifteen miles per hour, 3½ to 4½ h.p. motor bicycles twenty miles per hour, and over 4½ h.p. twenty-two miles per hour. Adjustments or tyre repairs were permitted, but competitors had to complete the journey within the maximum time limit. Controls were arranged along the route. The following motor cyclists essayed the run: W. Clare (2 h.p. Minerva), J. C. Finlayson (2 h.p. Alcyon), S. King (1¾ h.p. Motosacoche), C. Martin (4½ h.p. twin-cylinder Minerva), George King (3½ h.p. twin-cylinder Griffon), C. M. Dyer (4½ h.p. Minerva), G. M. Jackson (8 h.p. Jackson-J.A.P.), P. G. Harrison (5 h.p. twin-cylinder Griffon), S. Spurling, jun. (5 h.p. twin-cylinder Vindec Special), Alfred Scott (5 h.p. twin-

Reliability Trial in Tasmania.—

cylinder Griffon), and W. H. King (7 h.p. twin-cylinder Peugeot). The trial was merely one of reliability, and speed was not encouraged; but as there is no speed limit in Tasmania at present, one competitor made an attempt at record between Launceston and Hobart on a stripped 15 h.p. Humber two-seater. His time was 3h. 37m., so that the record of 2h. 53m. made by W. H. King on a Peugeot motor bicycle some months ago still stands. As a matter of fact, on this occasion George Jackson on an 8 h.p. Jap also covered the 120 miles in 3h. 37m. Parts of the road were very loose. All the riders with the exception of George King successfully completed the outward journey to schedule time.

On the Monday the return journey was commenced, and many competitors experienced tyre troubles, Spurling having no less than seven tyre repairs to make; nevertheless, he finished before the expiration of his time limit. Martin fell in taking a sharp turn at speed, but escaped with a few bruises. Dyer kindly stopped and helped him to get going again. The following are entitled to receive the club's certificate for accomplishing the run on each day within the time specified in the schedule: C. Martin, G. King, G. M. Jackson, P. G. Harrison, S. Spurling, jun., and W. H. King.

All the riders of the lightweight machines retired owing to the fact that tyre troubles accounted for them getting behind their averages.



SUCCESSFUL CONTESTANTS IN THE FIRST TASMANIAN RELIABILITY TRIAL.

(1) W. H. King (7 h.p. Peugeot).
(2) S. Spurling, jun. (5 h.p. Vindec Special).
(3) Motor cycles over 4½ h.p. starting from Launceston.
(4) Three competitors leaving Hobart.
(5) C. M. Dyer (4½ h.p. Minerva).
(6) G. M. Jackson (8 h.p. Jackson-J.A.P.)

Variable Gears for Motor Bicycles.

*THE DISCUSSION (Concluded from page 8).

Mr. C. Cather Cooke said he had driven a two-speed geared machine for two years all over England, and would not care now to tackle a single-geared machine. He had had a 3½ h.p. for three years, and it had never failed him or broken down; in fact, it had been a great success. He had never found it become overheated. He desired to mention one thing, namely, that he was partial to wires for operating the gears. During the time he had been using this 3½ h.p. machine repairs to it had not cost him more than 5s. He thought if we had low power and two speeds 5 h.p. engines would not be needed.

Mr. M. J. Tuchmann thought Mr. Hooydonk had done a very worthy thing in bringing up this subject again. Many things had been promised in the past in regard to variable gears, and he thought some advance had been made in solving the problem. To his mind, Mr. Hooydonk had been a little too severe on the variable pulley. This year, for the first time, the public had been largely ordering two-speed gears, and from what he had seen and heard he believed that even more variable pulleys had been ordered than two-speed gears. The public taste had to be taken into account. At any rate, the public had recognised that in the variable pulley they had a practical device. The low cost had something to do with this. There were several objections to the variable pulley, one was that it threw the belt out of line and caused it to wear out quickly; but that could be overcome; it was not a serious thing to carry a spare piece of belting and a couple of fasteners. Mr. Hooydonk's severe criticisms of it were hardly justified, he thought. At any rate, 1908 would see a great number of these pulleys in use. The necessity for a two-speed variable gear with the present-day motor bicycle was not so great as with the motor bicycles when first introduced. Modern machines were not so very heavy, but still they were fitted with very flexible engines. The aim of the present-day car designers was to avoid using the gears as much as possible. The man who ran from London to Edinburgh on a one-speed gear boasted about it.

Mr. C. Wilkinson agreed with Mr. Victor Hart; he was in favour of two-speed gears. But he had not had much experience. He would like to see a motor bicycle that would glide away at once when mounted. He could not do without pedals himself, and he thought they ought to be retained; he could not climb a long hill without them.

Mr. H. G. Bell said one point had not been mentioned in connection with two-speed gears, one class of rider had not been catered for, and that was the inactive man. The F.N. gear had been mentioned; it was not a two-speed gear, but only a one-speed reduction gear.

Mr. H. G. Cove thought Mr. Hooydonk had been too harsh upon the adjustable pulley. Personally, he thought there was a good future for it. The great drawback, however, was that it was necessary to dismount to change the gear.

Mr. W. Devonport spoke of the Nala hub gear he had used, which had proved satisfactory.

Mr. H. R. Dougal reminded the meeting that with a two-speed gear it was a necessity to have a clutch, and a clutch was always a great trouble. If the clutch failed, the two-speed gear failed with it. A clutch that would work all right would be a boon. The same objections applied to both kinds of clutch—the dog clutch or the friction clutch.

The Chairman (Mr. G. D. Leechman) added a few words at the request of the meeting. One or two points, he said, had struck him in the paper and the discussion. He thought Mr. Hooydonk's paper marked a very definite milestone on the road leading to the perfect variable gear. He believed variable gears would yet be largely used on motor bicycles. It was generally admitted now that variable gears were desirable. That was a fact worth noting. At any rate, for bicycles carrying a passenger, Mr. Wells would go as far as that in meeting the advocates of two or more speed gears. He thought the solution of the question lay largely in finding a light change-speed gear. Most of the gears were quite sufficient to turn a light motor bicycle into a heavy one, and so defeat their object to a certain extent. The question of overheating seemed to be better understood than it used to be. Overheating was due to overloading. So long as the load was kept within the reasonable power of the engine all was right. No doubt there was considerable difficulty, from the commercial point of view, in introducing change-speed gears. Capital was needed to manufacture them on a scale large enough to be profitable, and manufacturers were not to be blamed for moving slowly. Manufacturers were in business to do business, and, as a rule, they did not care very much what they made and sold so long as they made money. Mr. Hooydonk was an enthusiast in the cause of the motor bicycle, and not only a manufacturer. Still, what would be the good of his continual experimenting if it was going to ruin him. For his own part, said Mr. Leechman, with a twinkling smile, he believed he had invented the best speed gear ever yet thought of, but, he added, he could not get anybody to look at it with a view to pushing it commercially. It had to be fitted to the engine. Manufacturers said it would be a speculation; but, from his own prejudiced point of view, it had advantages over some others that had been marketed. A variable gear to be really satisfactory, and to hold its head up, should have among other things that feature which Mr. Lyons Sampson had referred to when speaking of thrust bearings. He endorsed what that gentleman had said on that point. It appeared to him (Mr. Leechman) that by introducing ball bearings you got over the pure slide and obtained a rolling motion instead, which reduced friction. He was inclined to agree with those who thought the adjustable pulley was good. It was not so good as Mr. Pemberton's variable gear, because the use of the latter would surely inspire anyone who used it to find out something better.

Mr. Hooydonk replied at some length to the various criticisms and opinions expressed. As to bevel gear *versus* spur gear he had tried several experiments, and had found that the bevel gear took more power to drive than the spur gear. The bevel gears he used were made by a first-class manufacturer. A straight-through drive was better than a bevel gear. The weight of the gear on the hub was a serious objection, no doubt, but when the motor bicycle came that would start off by the handle, a few pounds' weight would not matter. The gear for which he was responsible weighed 14 lbs., which he did not consider serious, and no doubt in future it could be made lighter. He agreed with Mr. Chatterton that a gear on the countershaft of a motor car was the right place; and when there were manufacturers who made nothing else but motor bicycles, and made them entirely, then we should have a motor bicycle with the variable speed gear on the countershaft; but until then we should have to get on as well as we could by making gears to fit the machines. Under present circumstances the back hub was the best place for it. In reference to fitting a three-speed gear belonging to a push bicycle to a motor bicycle, he had tried the experiment, and the gear was absolutely ground up to a pulp. Mr. Pemberton had entertained them by talking of his own nice handy device. If motor cyclists did not mind dismounting in order to change gear they would be content. Mr. Pemberton had said two speeds were not enough. Well, half a loaf was better than no bread. If they started with two speeds, cleverer men would come along and introduce a third, and even more; indeed, there was no telling how many we might have in time. He thought the Stanley Show people might help the industry more than they did in pushing the cause of the motor bicycle by mentioning in future opening speeches and elsewhere that there were such things in the show as motor bicycles. Motor bicycles had been ignored. (A Voice: Let motor bicyclists start a show of their own.) He admitted in regard to prices of variable gears that these were high, but he thought they would come down when the gears were more generally in use; the same with the motor bicycle itself, just as in the case of the push bicycle. He was glad to hear that Mr. Wells, with all his high fancies, would like to see a good two-speed gear. "Well, I hope," said Mr. Hooydonk, "he will put his glasses on and help us to look for it." Unquestionably, there were times when a variable gear was wanted. He was glad to see there was a strong movement to introduce a low powered lightweight motor bicycle. (Hear, hear.) Those folks will want a variable gear. He echoed Mr. Leechman's remarks on the commercial aspect of the question. Mechanism was with him not only a business, but it was his hobby too. He hoped all would help to make the motor bicycle a great deal better than they found it by devoting to it their intelligence as well as their pleasure-loving instinct. (Hear, hear, and applause.)

*Summary of a discussion following Mr. Hooydonk's paper.

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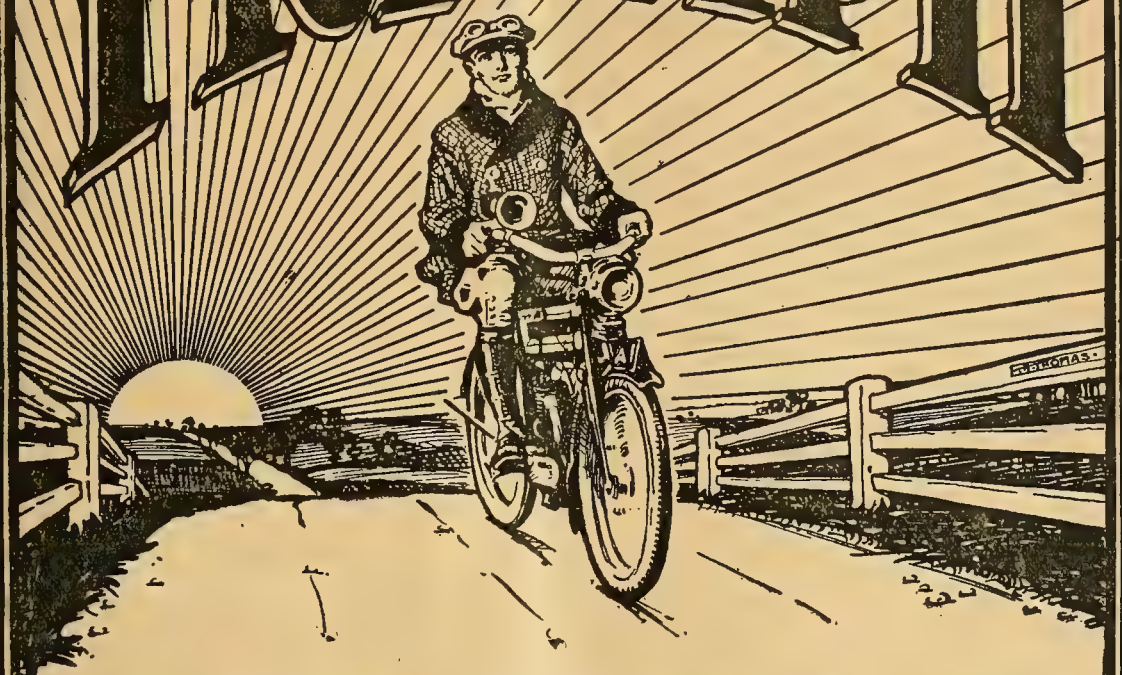

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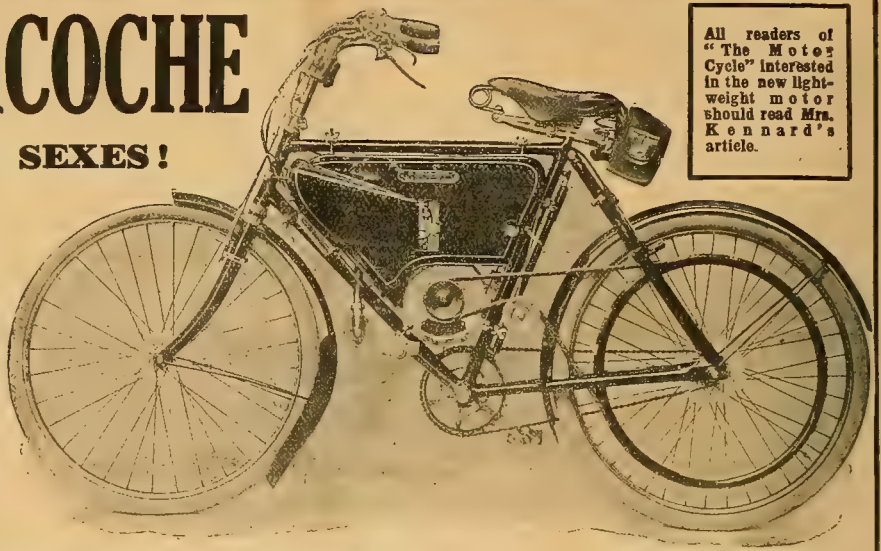
FOR BOTH SEXES!

All readers of "The Motor Cycle" interested in the new lightweight motor should read Mrs. Kennard's article.



Mrs. Edward Kennard terms it
THE IDEAL MOUNT.
WHY?
Because it combines Lightness, Simplicity, Power, and Reliability with Ease, Elegance, Handiness, Speed, and Economy.

WHY NOT HAVE A TRIAL RUN?

Extract from article by Mrs. Edward Kennard, "The Motor Cycle," Jan. 1st, 1908.

A REAL LIGHTWEIGHT BICYCLE.—A real bicycle, with a small 1¼ h.p. engine attached, framed round with tubes in the shape of an ordinary motor bicycle. My eye at once perceived the difference. The Motosacoche weighed seventy-five pounds. Its lightness, handiness, and simplicity were apparent to the veriest tyro. How nice for traffic and tight corners! The machine was so light one could pedal it precisely like an ordinary bicycle. The control seemed the acme of simplicity. There were no levers in the ordinary sense of the word. An exhaust lever on the left handle-bar advanced the ignition to the full when dropped, and in conjunction with it was a small handle which actuated the throttle. The Motosacoche would crawl along at three miles an hour or speed away at thirty. The complete lady's Motosacoche at the Stanley Show was admired by all. If it fulfils all its claims, I predict for it a great and immediate success among feminine votaries of the sport. It is what women want. A mount they can manipulate without male assistance. . . . I feel sure the Motosacoche will prove a boon and a blessing.

1908 MODELS NOW ON VIEW.

Single and Double-cylinders. Magneto or Accumulator Ignition.

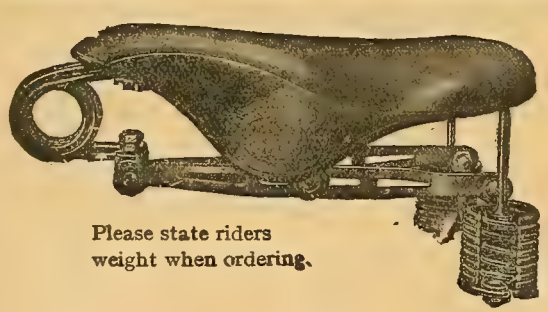
1¼ and 2¼ h.p.

SEND TO-DAY FOR LIST AND CATALOGUE.

SOLE PROPRIETORS FOR GREAT BRITAIN:

H. & A. DUFAUX (England), Ltd.,

65, Holborn Viaduct, London, E.C.
(Opposite Spiers and Ponds).
Telephone No.: 5439 Holborn.



Please state riders weight when ordering.

The popular B100 model

owes its popularity to distinct merit. It has met with favour from all Motor Cyclists who have tried different kinds of saddles—who have had long experience—and who are, therefore, the most reliable guides. They all prefer BROOKS MOTOR SADDLES—and there are many reason for it.

The new SPRING seat

is a most luxurious SEAT—possessing great smoothness and sensitiveness of action. For long distance rides, when room and ease are necessary, this will be found an *ideal* seat. Many riders who have tried this Model will not return to the ordinary saddle, declaring this the most comfortable seat they have ever ridden.

Ask to-day for a copy of our "Saddle Manual"—it tells about

BROOKS SADDLES

and SEATS for every Motor Cyclist—and every Motor Cyclist should read it.

J. B. BROOKS & Co., Ltd., Dept. 45, Gt. Charles St., Birmingham.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, must be accompanied with a stamped addressed envelope for reply.

Belt Transmission.

Feeling rather curious to know what "Road Rider" in "Hints and Tips for Motor Cyclists" means when he says that the Whittle belt jingles, I should esteem it a favour if you could enlighten me on this point. I have run over 6,000 miles with this belt on 6 h.p. twin-cylinder and sidecar (most of this distance in Derbyshire), and have yet to hear any noise that in my meaning of the word could be termed jingling.—JNO. HASLAM.

We think "Road Rider's" meaning was obvious. He desired to indicate that when running over the pulleys the Whittle belt is noisier in its action than a plain leather or rubber one.

A Powerful Mount for Competitions.

(1.) Is the 8 h.p. Peugeot a satisfactory engine in point of reliability? (2.) What is the highest speed on level this engine is capable of? Rider 10st. 6 lbs., machine 140 lbs. Kindly state gear. (3.) Are the bearings satisfactory on this engine? (4.) If fitted with high tension Simms-Bosch ignition, geared 2½ to 1, what is slowest speed it would produce a spark capable of igniting mixture? (5.) If I got this engine and had it fitted into a light frame—whole machine to weigh 120 lbs.—should I be barred from competition provided I conformed to rules *re* mudguards, silencers, etc.? (6.) In hill-climbing competitions is there always a class for any sized engine?—M.M., Oxford.

(1.) We have had no personal experience with this size of engine, but we believe, nevertheless, that it would be satisfactory. (2.) A machine fitted with this engine should easily be capable of sixty miles an hour with a 2½ to 1 gear. (3.) We have had no complaints concerning the bearings of this particular engine. (4.) It is possible to slow down some engines to about 250 revolutions a minute, but the carburetter has to be very carefully adjusted, and battery ignition must be employed. (5.) You would, of course, be barred from all competitions in which there is a cylinder capacity limit. You would only be able to take part in a few competitions in which there is an "unlimited" class. We should advise a standard machine for competitions. (6.) This class is not always included.

Misfiring in Back Cylinder

My 5½ h.p. Rex de Luxe has lately taken to firing very irregularly in the back cylinder. With the spark fully advanced it will not fire at all in the back cylinder, though the front one goes on steadily enough, but if the spark is retarded slightly the back one fires but does not give anything like as much power as it should do. If the front plug is shorted the engine stops altogether, while if the back one is shorted it makes little or no difference to the speed of the engine. I have taken the magneto to pieces and cleaned it, also fitted new fibre ring, overhauled wires, terminals, and tried any number of different plugs. The compression is splendid, and timing, valves, etc., all right. Do you think it is sparking through the safety gap? If so, how can this be prevented? Would there be any danger in fixing some insulating material in the gap to prevent it? I have also had the carburetter down and thoroughly overhauled it.—W.H.D., Newark.

Have you tested the spark at the back cylinder? If you are certain that the magneto and valves are all right, you had better turn your attention to the sparking plug. If you change them about you will soon tell if they are all right. Next change the inlet valve from the front to the back cylinder. The carbon pencils of the magneto occasionally require removing and cleaning. Perhaps this is your trouble. Sparking only takes place at the safety gap when the path of the high tension current is interrupted by a very large gap. The spark must then go somewhere, and so it exhausts itself through the safety gap. You must not interfere with the latter in any way.

Various Questions re a Twin-cylinder Bicycle.

I am thinking of having a powerful twin-cylinder with sidecar for this year. I went to the show and was much struck with the Matchless machine. The engine must be a J.A.P. What do you think of Collier's variable pulley and belt? Do you think it would stand sidecar work? I have heard that the back cylinder of a V-twin becomes hot, and the oiling is unequal. Is this all bogey? (1.) What carburetter do you consider best for 6 h.p. J.A.P.? (2.) Do you think pedalling gear necessary with sidecar (total weight of passengers nineteen stones)? (3.) I have always had batteries before. Do you think the Simms-Bosch magneto would give me any serious trouble? (4.) What kind of sidecar do you advise? Fixed or otherwise. Which side for fixing, and if on left hand side, does this present any difficulty for starting and mounting with passenger up?—A.E.G., Brighton.

We have an excellent opinion of the Matchless J.A.P. motor bicycle and Collier's variable pulley, which would undoubtedly stand sidecar work. You are not likely to have any trouble from the back cylinder overheating, or unequal oiling. (1.) We should recommend a J.A.P. carburetter. (2.) Pedals would not be necessary if you had a change-speed gear. (3.) No. (4.) Send a numbered list of sidecars and we will advise you. Sidecars are usually fitted on the near side of the machine, but you can have one attached to the off side if you desire it. It would be better for mounting.

Use of Cut-out and other Queries.

I am riding a 1906 magneto 3 h.p. Triumph. (1.) Can you tell me if it is advisable to ride with cut-out open when in the country? Does one get more power with it open, and is the engine liable to overheat if run with it closed? (2.) I lubricate very freely; a pumpful every seven or eight miles. Is this a mistake, and can it do any damage? (3.) Is it advisable to leave belt off when machine is not in use, or does it not stretch when left on (Brooks's Stratex)?—J.F.T., Brackley.

(1.) Provided the silencer is found fairly efficient the advantage of using the cut-out is extremely small. Occasionally up-hill in deserted country it may be used with some slight advantage, as it keeps the engine cooler. (2.) The lubrication is too copious. If you use the best quality lubricant, as you should do, a charge every fifteen miles is sufficient. When approaching a very steep hill an extra charge may be given. (3.) Always remove a leather belt when the machine is out of use.

Magnets require Remagnetising. Care of Accumulators.

(1.) I have a 3½ h.p. N.S.U., nearly new, which runs very fast on the stand, and though not particularly easy to start from cold it is possible to do so without injecting petrol. As soon as I take it on to the road it starts somewhat indifferently, runs about 200 yards, gradually slows, and ultimately stops. At first I thought this was due to defective carburation or petrol supply, but this I find is in order, nor is it the mixture, as I have tried all combinations. The field magnets of the Eisemann will not support four ounces of iron. Can these require re-magnetising? (2.) I use Wilburine lubricating oil. Has the use of this oil a tendency to cause hard starting, or must I look elsewhere for cause of this trouble? I may say engine has always given satisfaction on the road. (3.) I have also a 2¾ h.p. Bradbury fitted with accumulator ignition which I am going to "lay up" till the spring, and do not desire to have the accumulators charged periodically. If I were to have them fully charged, then empty acid, take out plates, and remove some light chocolate-coloured deposit in the cells, thoroughly wash out, and then fill up with distilled water, would this do any harm to the plates?—N.S.U., Yorkshire.

(1.) If the machine is nearly new it is unlikely that the trouble is due to the magnets having lost their magnetism. However, if you have removed them from the magneto machine and left them even for a minute without a keeper, that is to say a piece of iron joining up the poles, they will have lost their magnetism to a considerable extent. Examine the contact breaker and coil connections. (2.) The lubricating oil is good, and does not cause the piston to stick in the cylinders. (3.) You have mentioned the best way to store your accumulator. If you want the accumulator repaired it is better to send it to the makers than to do it yourself.

A Single-cylinder Tricar with Reverse.

I am looking for a light single-cylinder tricar like the 5 h.p. Phœnix or Riley, but fitted with a reverse. Is there such a thing on the market? Is the absence of a reverse on the machines above-mentioned much of a drawback? I am not strong, and have a fair amount of traffic to negotiate. It is interesting to note from the article "Law and the Motor Cycle" that if a machine weighs over 5 cwt. it must have a reverse.—J.H.S., Clapham.

No, we do not know of a single-cylinder tricar fitted with a reverse. The only thing to do would be to get an agent to build up one for you, having a Chater Lea three-speed and reverse gear. The absence of a reverse is not greatly felt, although, of course, there are occasions during almost every day's run when a reverse gear would be very useful.

Steel-studded Bands.

I have a 4 h.p. Roc with two-speed gear which I use for my medical rounds; the roads are fairly rough and very hilly. At present I have on a 26in. by 2¼in. Palmer tyre, but think that for winter riding I should like some form of studded band, but am told that I shall find the machine slowed to the extent of a h.p. I should be very glad if you will tell me whether this is the case, and what your advice would be? I am not troubled with skidding at all, but find the rubber tread is wearing down very distinctly after 400 miles.—Dr. W.H.D., Devon.

You will find that steel studded tyres will slow your machine about one mile an hour, not more. If you do not care for steel studs there are one or two covers on the market with studs of leather and rubber which we understand are most effective against side-slip.

Oiling Difficulty with a V Twin.

I have a 5 h.p. Brown, and rings of back cylinder have burnt in twice. I have tried two or three different brands of oil. (1.) Is it possible to lubricate back cylinder properly? (2.) Are the cylinders too thick, and not ribbed enough to cool properly? (3.) Can you recommend an oil that won't char or burn? (4.) Can you tell me how to get piston out of cylinder? Ordinary methods quite fail. (5.) Would it be too drastic to leave bottom piston ring out so that it might form a well for oil?—W.G.D.

We do not understand exactly what you mean by the rings having been "burnt in" twice. Do you mean to say that the piston has seized in the cylinder, or that the excess of lubricating oil has got burnt around the rings and caused them to stick in the grooves? You do not mention how frequently you inject oil into the engine. (1.) It should be quite possible to lubricate the back cylinder properly. (2.) As far as we know the cylinders keep cool, and have sufficient radiating surface to enable them to do so. (3.) Try Price's Motorine A or Wilburine oils. (4.) If the piston has seized in the cylinder the best method is to soak both in paraffin before attempting to withdraw the piston. If it will not come out after it has been soaked in paraffin it must be a very bad seize. (5.) None of the piston rings should be removed. There is usually an oil well on the top of the crank chamber. Why not try an additional oil tube leading to the side of the cylinder with a three-way tap so that you can give this refractory cylinder a little extra lubricant from time to time?

Auxiliary Exhaust Ports.

I have a 2 h.p. Peugeot bicycle, and have been told that I shall increase its efficiency if I bore some holes through the cylinder just above the top of the piston when it is at its lowest, so as to release the burnt gases at the end of the explosion stroke. I shall be glad if you will kindly tell me—(1.) If this device improves a machine, and will it give me more power for hill-climbing? (2.) How many holes should be bored, and of what diameter? (3.) Will the oil be splashed out to any extent so as to make the engine dirty and require more frequent lubrication? (4.) The holes which would be just above the piston when at the bottom of its stroke would be just uncovered when the piston is at the top of its stroke. Would dust and grit be liable to be sucked in through the holes?—H.P.B., Dorking

(1.) We do not advise the alteration, but the device in question undoubtedly improves a machine as regards power and hill-climbing. It will cause a great deal of noise and cover your legs with oil. (2.) If you decide to adopt it we should recommend two holes ⅜in. in diameter. (3.) The oil will be splashed out to a considerable extent, and much will be wasted, so that more frequent lubrication is necessary. The best plan is to fit a hollow ring round the place where the holes are made, so that the oil can be carried by a pipe from the latter on to the ground. (4.) The piston must be very much shorter than usual if it would allow the holes to be uncovered at the top of its stroke. We should advise a longer piston, as although we do not think dirt could be drawn in, the oil would be blown out very much worse when piston was at the top than when it was at the bottom of the cylinder.

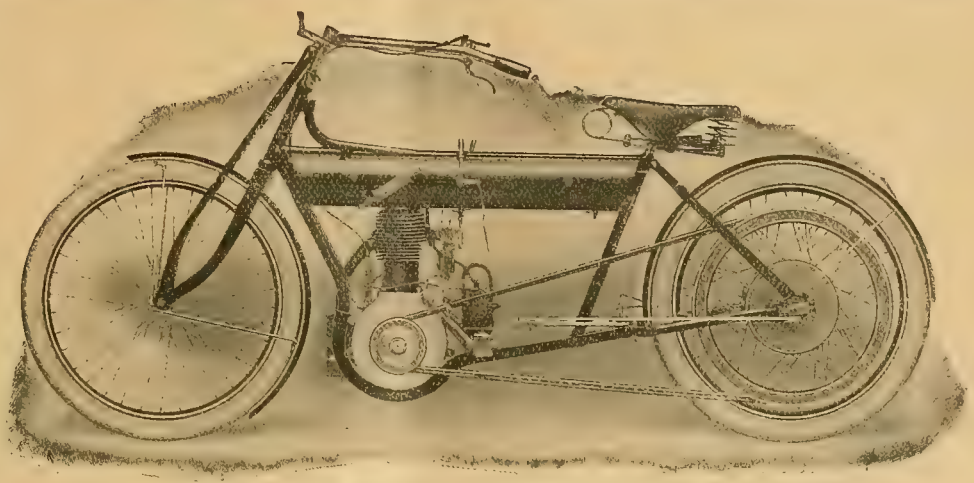
"The Autocar," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. issued weekly.

THE NEW YEAR OF 1908

marks a turning point in the history of motor cycles, viz: the application of car practice as in the case of clutches and speed gears.

The movement is most conspicuous in the

ROC



ROC 4 h.p. Military Model, duplex frame, ROC clutch and speed gear, 45 gns.

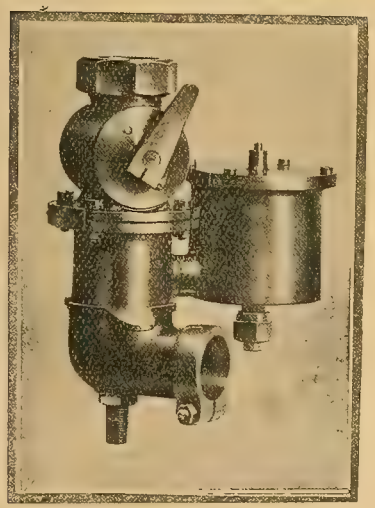
machine, which has for some years been the forerunner of the present day low frame, long wheelbase, pedal operated clutch, etc. The Roc live back axle with hand starting incorporating the Roc new speed gear can also be supplied on other makes of machines or as a separate component for conversions.

A. W. WALL, Ltd., Roc Motor Cycle Works, BIRMINGHAM.

LONDON: The Service Co., 292, High Holborn.

AND AGENTS IN ALL LARGE TOWNS.

"J.A.P." MOTORS.



JAP Patent Automatic Carburetter.

As the result of experiments extending over several years, this Carburetter was devised nearly two years ago. We have had a number in constant use on various engines for the past 18 months. The advantages of this carburetter are:

Simplicity.
Automatic action, needing no hand regulation.
Easier starting (with throttle almost closed). Engine starts smoothly and slowly without jump or jerk.
Slower, quieter, and more flexible running of engine.
Greater speed and power with less petrol consumption usually
Simpler and easier control.

Increases the pleasure of driving twofold.

Order at once to insure prompt delivery.

Jap Patent Variable Pulley.

Send for New Illustrated Catalogue—now ready.

John A. Prestwich & Co., 1, Lansdowne Road, Tottenham, London, N.

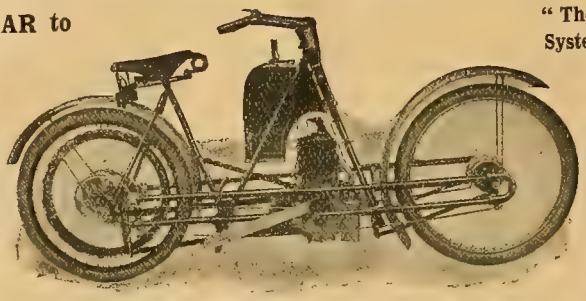
Telephone—1822 Tottenham. Telegrams—"Prestwich, Tottenham."

SHOCKS OVERCOME BY THE 'ZENITH BICAR.'

THE FAMOUS SPRING-FRAME MOTOR BICYCLE-DE-LUXE.

VIBRATION spells WEAR to rider and machine. WEAR spells LOSS of temper and £ s. d.

The price of the "Zenith Bicar" is 43 gns. net cash, or 50 gns. with two-speed gear.



"The Zenith Bicar" Patent System of Construction defies Road Shocks. "No front forks to snap" is only one of its MANY Pioneer Points. No trouble, no vibration, no risk of sideslip, no running alongside to mount—for it starts with a handle same way as a car. Comfortable footboards instead of pedals.

"MOTOR CYCLES FOR SALE" seldom includes the "Zenith Bicar," despite its several years of existence and widespread output. Unlike the many hundreds advertising their anxiety to part with other makes, "Zenith Bicar" riders "grapple them to their souls with hooks of steel."

Join this happy band of contented motor cyclists. Write now for our list showing all the many advantages of the "Zenith Bicar" (and of the "Zenith" Tricar, built on similar non-vibration lines, price 75 gns. net). No experiments. No cheap fitments. No "easy" payments. No exchanges. Only bed-rock value.

Fitted with Fafnir 3½ h.p. air-cooled Engine, 80 mm. x 80 mm. Longuemare Carburetter, Free Engine Clutch, Starting Handle, Prested High-speed Trembler, two Accumulators Exhaust Valve Lifter (operated from handle-bar), Clincher Tyres (2½ in.), Whittles' or Watawata Belt, Brooks' Saddle; of the Finest Workmanship throughout; the price is 43 guineas nett cash, or including crate, cartage, and London Dock dues, £1 15s. f.o.b. export steamer.

To prevent disappointment orders should be placed immediately, as the output of our present works is strictly limited, and our new works will not be ready this season. All orders executed in strict rotation.

ZENITH MOTORS, Ltd., 101a, Stroud Green Rd., LONDON, N. (BUYING AGENTS WANTED Exclusive Districts Allotted)

SHOW ROOMS: 119, STROUD GREEN ROAD. Nearest Station: Finsbury Park.

Why have your Magneto in the Mud?

The Reliability of the Magneto.

Several replies have been received to our query as to the distance covered on a motor cycle without adjusting or cleaning the magneto. Up to the time of writing, Mr. D. J. Maitland holds the record, viz., 4,000 miles on a 6 h.p. Bat-Jap without a misfire or removing the contact breaker cover.

THIS PROVES THE BAT SYSTEM OF BALL BEARING GEAR-DRIVEN MAGNETO (PROTECTED IN TANK) TO BE PERFECTION.

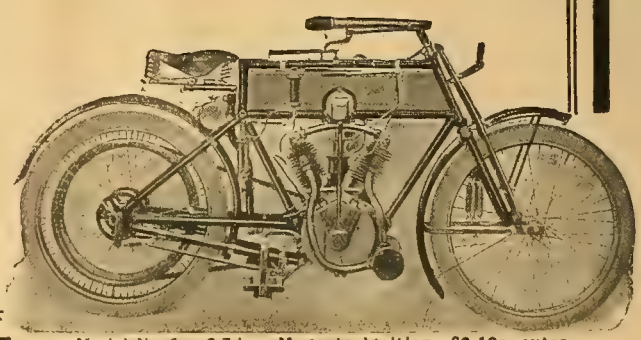
3½-4 h.p., 42 Guineas. 6-7 h.p., 50 Guineas. 7-9 h.p., 55 Guineas.
Magneto, £6 10s. extra.

THE . .

BAT

MOTOR MANFG. CO.,
PENGE,
LONDON, S.E.

JAP ENGINES.
SPRING FRAME. FORKS.



Model No. 1. 6-7 h.p. Magneto Ignition, £6 10s. extra.

In answering either of these advertisements it is desirable that you mention "The Motor Cycle"

CLUB NEWS

Motor Cycling Club.

Mr. H. G. R. Slingo, corresponding hon. secretary of the M.C.C., informs us that a Bohemian concert will be held, to which ladies are specially invited, on Tuesday evening, February 18th.

Sheffield and Hallamshire M.C.C.

The annual general meeting will be held at headquarters, the Nelson Hotel, Moorhead, Sheffield, on Thursday, January 16th, at 7.30 p.m. The committee specially ask all members to attend, several matters of considerable importance having to be decided, and it is hoped to have a full discussion on affiliation to the Auto Cycle Union. Agenda: Minutes of last meeting; statement of accounts; election of officers; Auto Cycle Union affiliation scheme; any other business.

Lincolnshire M.C.C.

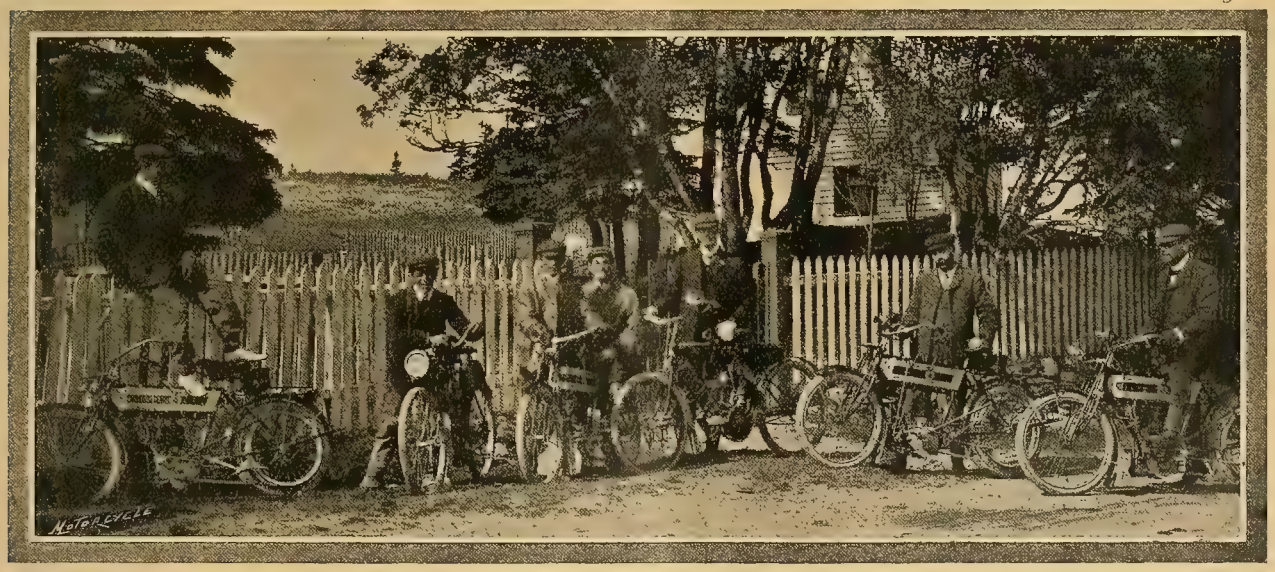
The annual meeting on Saturday next, at the Spread Eagle, Lincoln, is at 3 p.m., and in addition to the election of officers and committee, and adoption of balance-sheet and report, the question of affiliation for 1908 is to be considered. The hon. secretary proposes that the membership of the club be not, as hitherto, confined to the county, and that a club badge be adopted. Mr. Brunning proposes that in future applicants for membership shall sign the application form and forward the fee with it. Suggestions for meets, etc., and for work for the club are asked for, so that a good programme can be arranged. After the meeting there will be tea at the hotel, and in the evening, at seven o'clock, a first-class smoking concert, under the chairmanship of the hon. solicitor to the club, Mr. Nelson. The prizes won during the year will also be presented. A very good programme has been arranged, and as there are late trains home to most parts it is hoped there will be a very good muster. Tickets, 1s., are obtainable from the club and centre officials, the committee, etc.

North-west London M.C.C.

At a committee meeting held on the 3rd inst., Messrs. T. G. Blundell and F. Thomas were elected members. The club is very much indebted to Mr. W. H. Pidgeon for kindly standing for election as president.

The annual dinner will take place on Saturday next, at the Hotel Boulogne, Gerrard Street, W., at seven o'clock. It is very gratifying to those responsible for the arrangements to see the way in which the tickets are being taken up.

The annual general meeting will be held on February 7th, of which due notice will be given the members. The hon. secretary, Mr. H. V. Davidson, jun., will be glad to furnish particulars of the club to intending members, who must be amateurs. His address is 22, Olive Road, Cricklewood, London, N.W.



Some Newfoundland motor cyclists. Reading from left to right—Alex. Bryden (3½ h.p. Triumph), George Bursall (1¾ h.p. Thoroughbred), Dr. T. Smith (3½ h.p. Triumph), Dr. Macpherson (3 h.p. Columbia), Frank Brehm) 3½ h.p. Triumph), and Dr. Fraser (3½ h.p. Triumph). The roads in Newfoundland are fairly good for motor cycling, but the position of the engine should not be too low. Photograph kindly sent by Mr. S. A. Churchill, St. John's.

The Premier Motor Co., Birmingham, are inaugurating a system covering the sale of the better class second-hand motor cycles by issuing a signed certificate which accompanies a certain section of the machines which they have personally tested and proved to be free from blemish. Machines offered to the public under this category naturally cost a little more than the average second-hand machine sold without guarantee. We think such a scheme will be welcomed.

We have received from Mr. R. W. Coan, the Aluminium founder of Goswell Road, E.C., a cast aluminium card tray 12in. by 8in.—an appropriate and seasonable souvenir for the motor trade.

A copy of a booklet entitled "Duco Motor Accessories" for 1908 is just to hand. This contains illustrations and prices of a very large selection of motor cycle accessories. Copies can be obtained from Brown Bros, Ltd., Great Eastern Street, E.C.

Motor Cycle Lamps.

We understand that a well-known firm are about to market a small but powerful searchlight motor cycle lamp after the style of the small Bleriot.

A Novel Winter Rig.

Last week we noticed a rider on a powerful twin-cylinder machine with a rigid sidecar chassis attached. With the chair, mudguard, etc., removed, the turn-out looked quaint, especially with the bone dry roads.

Races on the Velodrome d'Hiver.

On Sunday last, at the above Parisian covered winter track, Giuppone and Moreau were to meet in a motor cycle match. The result will be announced in our next issue. Motor cycle paced races also formed part of the programme.

Hill-climbing Competitions.

After quoting from the recent editorial in *The Motor Cycle* anent the R.A.C. veto of open hill contests on public roads, a well informed Southern contemporary makes a welcome statement, viz., "that so far as the London clubs are concerned, there are several suitable hills fairly close to town, where such a ruling need not apply for the simple reason that there is no traffic about, and the trials would not inconvenience anyone."

The First Competition in 1908.

The first competition of the year will be the Quarterly Trial on Saturday, January 25th, over the usual course, starting from Uxbridge to Banbury, *viâ* Dashwood Hill and back *viâ* Bicester, Aylesbury, Berkhampstead, Chesham, and Amersham. Entry forms and full particulars can be obtained from the secretary, Auto Cycle Union, 18, Down Street, Piccadilly, W. The entry fees are: Manufacturers or agents, £1 1s.; members of the A.C.U. or its affiliated clubs (private owners), 10s. 6d.; non-members, 15s.

A Sporting Course.

The above course is a very sporting one, including as it does several severe hills in addition to Dashwood, on which hill the riders have usually been timed. It will be interesting to see what result the recent decision of the R.A.C. will have on the test hill. Motor cyclists anxious to test their new pattern machines could not find a better 125 miles run. It is to be hoped that there will be rigid, flexible, and castor wheel sidecars in the trial, so that their respective merits will be proved publicly.

A.A. Annual Dinner.

The annual dinner of the Automobile Association will be held at the Hotel Cecil on the 18th March next

Affiliations.

The Scheme of Association recently issued by the Royal Automobile Club has been brought before the committee of the Auto Cycle Union, who have appointed a sub-committee to consider the matter and report.

Magneto Nomenclature.

In future the celebrated Simms-Bosch magneto will be known as the Bosch magneto, and shortly the name of the company manufacturing it, the Bosch Magneto Co., Ltd. The magneto machine will continue to bear the same trademark as previously, and the same high standard of work will be carefully maintained.

A Considerate Motor Cyclist.

"O 23" is good enough to send us a humorous drawing taken from the *Birmingham Weekly Post* on the 28th ult. It depicts a motor cyclist who has just been pulled up by a constable, who is standing notebook in hand. The inscription reads:

The Captor: "We'll 'ave ter wait till the sergeant comes up; 'e was 'idin' in the pigsty."

The Captive: "Well, let him finish his lunch, by all means."

Reduced Charges for Petrol and Oil.

Some time ago our German correspondent reported that the German Motor Cyclists' Association was considering the question of obtaining fuel and lubricants at cheaper rates than those ruling in the open market. He now learns that the association has concluded a contract with the German Petrol and Oil Works, Ltd., of Regensburg, for the establishing of depots throughout Germany for the sale of petrol and lubricants. The company will forward these materials in special packing direct to the depots at a maximum price to be determined year by year by the contracting parties. For 1908 the price per litre shall not exceed 43 pfennigs, or 1s. 11d. a gallon. Further, members of the Association receive rebate tickets of 10 pfennigs (1¼d.) for every 5 litres (9 pints) of petrol and 2 litres (4 pints) of lubricating oil; and in addition to this the association receives a small percentage on the turnover at the various depots. Another advantage secured for the members is that the company agrees to supply, free to any German railway station, barrels of 100 to 200 litres (22½ and 45 gallons) of petrol at 33 pfennigs per litre (1s. 5⅝d. a gallon), provided members supply the barrels. Hundred-litre barrels can be purchased from the company for 18 marks (18s.), 200-litre barrels for 22 marks (22s.) It is proposed to establish 4,000 to 5,000 depots in Germany.

Probably the Youngest Motor Cyclist.

Harry Ryan, six years old, the son of a Pittsburg cycle maker, has won a two miles motor cycle race, says the *Globe*.

An Enjoyable Winter Ride.

The correspondent who made such an excellent sidecar trip on Boxing Day between London and Folkestone mentioned in our Current Chat columns last week, had occasion to repeat the journey on New Year's Day, and reports that he found the riding conditions ideal throughout. No grease, no water carts, no police traps, and no dust. The sun was shining brightly at the seaside, and the journey from London to Folkestone and back was accomplished comfortably between 10 a.m. and 5.30 p.m., the total distance being 164 miles.

Speed Limit at Bromley.

The application by the Bromley Town Council for a ten miles speed limit on the Sevenoaks Road, the steep hill from Beckenham and elsewhere, has been partly successful. At the enquiry three months ago the police evidence signalled out motor cyclists as being the worst offenders as regards "excessive speed." The statement was challenged by the secretary of the Motor Union, and it was admitted the contention was based on police trapping on an open stretch of country road. The L.G.B. has agreed to issue a regulation for some of the streets scheduled, but not for all. The ruling will apply to the main road, also on the steep hill named.

Dublin Motor Show.

The following are the makes of motor cycles represented at the Dublin Show, which opened on Saturday last, and will remain open until the 11th inst.: F.N., Minerva, Roc, Moto Rêve, also "Tee Bee" specialities for motor cycles exhibited by Bannister and Co., Dublin; Minerva, by Hirst Bros., Dublin; Zenith and Zenette, by Zenith Motors, Ltd.; Fairy, by F. S. Nickells and Co.; Motosacoche, by P. D. Bourke and Co., Limerick. During the show N.S.U. motor cycles may be seen at the showrooms of F. A. Wallen and Co., 4, Nassau Street, Dublin.

Motor Union Touring Department.

Mr. W. O'Meare has been appointed head of the Touring Department of the Motor Union.

1908 Models on the Road.

During a run on a Southern road last week-end, a contributor noticed among other 1908 models a Triumph, a twin-cylinder Rex, a Max with the driver seated, a 9 h.p. J.A.P., and a Motosacoche, all travelling well.

Exhaust Analysis.

Some time before the paragraph published on page 13 of our last issue had been penned, a reader had been engaged in analysing the products of the exhaust gases of his 5½ h.p. twin-cylinder motor bicycle. In a letter to us he promises to forward an article dealing with the subject when his experiments are complete. This, we know, will be looked forward to with interest by our readers.

The Northern Roadmenders' Fund.

Our readers will remember that we published on page 1014, of December 18th, a letter from Mr. W. T. Bishop, hon. sec. of the North Road C.C., 13, Waldegrave Road, Hornsey Park, N. This letter explained the objects of the Northern Roadmenders' Fund, which provided last year for eighty-four men a substantial dinner, followed by a musical programme. The dinner and entertainment are given as a small recognition of the roadmenders' services for the fine condition in which the roads of North London are maintained. Probably motor cyclists who make use of the area covered by the scheme, comprising the Northern suburbs, North Middlesex, the Coventry and Great North Roads beyond St. Albans and Hitchin, will be willing to subscribe to the fund or to assist Mr. Bishop with collecting sheets, which he will willingly supply on application. An audited balance sheet will be sent to all subscribers to the fund.

Scottish Motor Exhibition.

The eleventh annual Scottish motor exhibition will be held in the Waverley Market, Edinburgh, from January 24th to February 1st next.

A Magneto Tip.

With regard to the magneto tip published in our last issue, page 4, the Cie. des Magnetos Simms-Bosch, Ltd., inform us that they would not recommend users of the D.A.V. magneto to alter the timing in the manner described, as they fail to see how it would be possible for anyone to improve the timing of the magneto by such means, particularly having regard to the obstinate nature of the fibre from which the ring is made. They say that when a fibre ring is so worn that the firing of the cylinders does not synchronise, the best and cheapest way to overcome the difficulty is to send to them for a new ring. We are asked to mention that if any readers have difficulty in fitting the fibre ring or getting the cylinders to fire synchronously, the company have no objection to doing the fitting, free of cost, provided the machine is taken or sent to them.

Spanish Motor Cycle Races.

A motor cycle road race took place on Spanish roads on the 29th ult. over a distance of fifty-three miles in the neighbourhood of Catalogna. The result was a win for Arteman, who rode a 1¾ h.p. Peugeot. Time, 2h. A rider of a N.S.U. was second in 2h. 6m. 30s., and a Griffon third in 2h. 50m. The Spanish motor cycle championship will be held next month.

French Auto Cycle Trials.

The Auto Cycle Club of France will hold a reliability trial for motor cycles and voiturettes from the 4th to the 9th of May next. The trial will comprise six daily runs of 150 to 180 miles. The first day's run will be to Tours, then to Bordeaux, Limoges, Clermont-Ferrand, returning to Paris *viâ* Dijon, a total distance of about 950 miles. The motor cycles are to be divided into three classes. Further details next week

FUTURE EVENTS.

Jan. 9—West Essex A.C. Annual Dinner.
,, 11—Coventry M C. Annual Dinner.
,, 11—Lincolnshire Motor Cycle Club Annual Dinner.
,, 11—North West London Motor Cycle Club Annual Dinner.
,, 22—Southend and District M.C. Annual General Meeting.
,, 24 to Feb. 1—Scottish Motor Show, Waverley Market, Edinburgh.
,, 25—Auto Cycle Union Quarterly Trial.
,, 27—Motor Cycling Club Annual Ganeral Meeting.
Feb. 7-15—Manchester Motor Car Show, Belle Vue, Manchester.
,, 15—A.C.U. Fifth Annual Dinner.
,, 15—A.C.U. Council Meeting (provisional).
Mar. 21-28—Cordingley's Motor Show, Agricultural Hall.
April ——Auto Cycle Union Quarterly Trial.

The Olympic Games.

We understand that the Union Vélocipédique Francaise has decided to boycott the Olympic games at Shepherd's Bush in June. All riders licensed by the above Union who take any part in the games will be disqualified.

Records for One Hour.

A French contemporary published last week a table of one hour record speeds attained in the pursuit of sport and commerce. The motor bicycle is only credited with a speed of 55.8 miles per hour on the road. Track records are mentioned in connection with cycling, pedestrianism, motoring, etc., but not motor cycling. Reference to the table of the year's motor cycle records which we published last week shows that the world's hour record for motor bicycles is held by Giuppone with 63 miles 1,078 yards on December 9th, 1905. The British hour record holder is C. R. Collier, who covered 56 miles 607 yards on September 7th, last year.

A Prominent Motor Cyclist Married.

Mr. H. A. Collier, the well-known racing motor cyclist, was married to Miss Elizabeth Mead, at St. Nicholas Church, Plumstead, on New Year's Day.

Mail Carrier Tricars.

The experiment is being tried in Washington, U.S.A., of using tricar carriers for collecting mails. During the first two months of the tricar's trial it did not miss a single trip. If, after prolonged trials, it proves a success, it is expected that a large order will be placed by the Government for similar machines. Tricars and sidecars for collecting mails were tried and adopted in Austria, Germany, and other countries some years ago.

A Memento of Tyburn Gate.

We have received a letter from Mr. W. E. Russell, secretary of the C.T.C., calling attention to the iron tablet which marks the position of Tyburn Gate, near to the Marble Arch. Mr. Russell says that when the space round the Marble Arch is extended, it is to be hoped that an interesting memento will not be interfered with. We quite agree with him, and we feel sure that our readers will confirm his views. The iron tablet referred to marks the spot from which the mileage of the two great roads that join at the Marble Arch is measured. Such links with the past are always interesting to road travellers, and we understand that arrangements have been made to safeguard the ancient landmark referred to.

A.C.U. Annual Dinner.

The annual dinner of the Auto Cycle Union will be held on Saturday, Feb. 15th next, at the Hotel Cecil. A council meeting will be held in the afternoon, probably also at the Hotel Cecil.

Every Vehicle to carry a Light.

The Lights on Vehicles Act which came into force on January 1st requires that lights must be carried on all vehicles at night. It is a law which has been agitated for many years, and all users of the open road will welcome the Act. Vehicles carrying loads that project more than six feet to the rear must carry an additional red light behind. The new Act applies to England, Ireland, and Wales, but not to Scotland, as universal lighting has been compulsory in Scotland for some time.

Motor Cycling in Tasmania.

Mr. S. Spurling, jun., of Launceston, who kindly sent us particulars of the first motor reliability trial held in Tasmania (see pages 24-5), mentions that early last month there were fully 150 motor cycles running in Tasmania, and the number is increasing every week. Nearly all the best British makes are represented. There is no need for special machines in Tasmania, any machine with spring forks will stand well, provided the crankcase has three inches ground clearance.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 1024.*)

Lamps.

GENERAL.

129. A motor bicycle is unsafe after dark with any but an acetylene lamp.

The lamp need not be cowled if the reflector is accurate.

The number-plate must not be affixed to the lamp, nor rise above the lower edge of the lens, otherwise disconcerting shadows will dance ahead. It should be set on the front guard, just within the edge of the rays.

Points *re* lamps :

The burner must screw into holder, not jam in. If it is jammed in, it is liable to jump out.

A filter and a gasbag are necessary parts of a good lamp, that may be trusted to burn long and steadily.

The reflector must be detachable, or it will never be kept clean.

The glass should be detachable, by means of a spring ring.

It should have a bail handle, for use as a hand lamp, what time the lettering on the lofty signpost is weather-beaten.

The pipe from generator to burner should be detachable, and of rubber; metal pipes foul and burst.

The hinge to the lens door should be very strong.

The clip holding the lens door shut should have a check trigger, as on the 20th Century lamps.

The water valve should have a delicate adjustment of many notches—this tends to steady light and economy of carbide.

If the generator is of the diving bell pattern be sure the valve tap above the generator is a tight fit.

The clip holding lamp to bracket must be springless. No springs can resist the leverage to which these are subjected.

The bracket clip should have at least one locking screw, and if this goes clean through the bracket and has a locknut, the lamp need not be insured. Otherwise it must.

Most motor bicycle lamps are condemned by reason of their throwing back stray rays into the rider's eyes, and not throwing the light sufficiently far ahead.

LAMPS ON TRICARS.

130. A tricar should have four lamps—no more, no less.

One in front, as token of importance, and to illuminate the middle distance.

One at each side to reveal the ditches, and to show how wide we are. And a little one at the back, complying with a tiresome unequal law, if we weigh over 3 cwts.

The headlight must be acetylene.

The side lamps are best acetylene. They may be paraffin, in which case they will either be car lamps, and look very large and clumsy by day, or else they will be motor cycle lamps, and give a weak light by night.

The rear light must be electrical, because a huge unwieldy oil lamp spoils the run of a neat tricar.

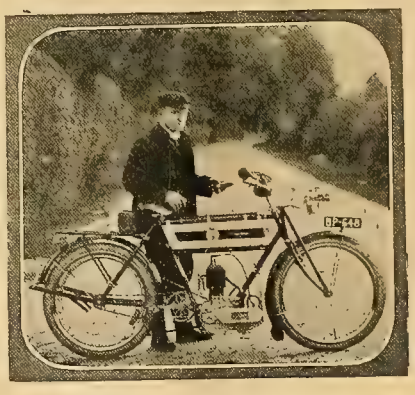
LIGHTING THE NUMBERS.

131. On a motor bicycle the front number should be set right down on the front guard, well forward, where it will just catch the lowest rays of the lamp without casting shadows. On a tricar, the rear number must be illuminated (electrically for choice), thanks to the L.G.B. interpretation of sundry dubious clauses in the last Act, if the tricar exceeds 3 cwt. in weight. If a light tricar, set the front lamps well back, and paint the number on both sides of the fore body ahead of the lamps. Although not compulsory, it is better for the rider's safety to show a rear light on a tricar weighing under 3 cwts. also.

CARE OF ACETYLENE LAMPS.

132. *Cleanliness* is the one sole factor of success with acetylene lamps. Riders new to them should burn a charge in them at home before the first night ride, and note the effect of temporarily feeding too much water to the generator.

Given a clean lamp, gas should be obtained in thirty seconds from turning



ARE MOTOR CYCLES RELIABLE?

The Rev. R. Measures, in sending us the above photograph some months ago, mentioned that he had covered 3,700 miles on the Triumph motor bicycle shown, without an involuntary stop or adjustment on the road.

on the water. Turn it on say a full turn, and when the pipes have blown clear and the flame settles down to burn steadily, turn the water feed back to the minimum which provides a bright light. When the carbide gets sodden, a generous supply of water is necessary, but this should not be for four hours with a fair sized generator.

If no gas comes, and the carbide and water reservoirs are filled, there is dirt either in water valves or central drilled tube of carbide container, or in burner. Most probably it is in water valve. Do not take valve out, but putting lips to water filling orifice, or round top of valve needle, blow vigorously till clear. If tube or burner is dirty, you will have to detach, and will remember to clean them next time. In case of leaks and flame bursting from body of lamp, smear with soap, white lead, or sealing wax; if round carbide container, tighten it up and renew washer.

Never leave acetylene lamps to burn out. Their expiring exhalations are full of impurities and apt to choke burner. Detach container, and leave it to exhaust itself on the garden wall.

Always turn off water during stoppages.

Much unspent carbide may be retrieved by riddling a half used charge, but it seldom pays to relight a charge that has a lot of dust and sediment mixed with it from the previous night's burning.

Always either clean or detach container after use. The vibration of running throws the dust into the valve of lamp.

To clean container quickly, sludge it in a bucket of water, and gouge with a big screwdriver. The best lamps have dummy bottomless cups or inner skins in the containers; these greatly facilitate cleaning.

FAILURE OF LAMP ON ROAD.

133. If there are two points of flame in burner the burner is all right. If not, blow it out with a tyre pump, on to which it should screw; or scrape with knife, or open with fountain pen pricker. If it won't clear on the road take it home, and flush with liquor potassæ.

If burner is all right, probably water valve is choked; blow down filler cap, momentarily turning water full on.

Otherwise, water exhausted, carbide sodden, or some choked passages in carbide container.

FILLING GENERATOR.

134. Remember, carbide expands considerably when wet, therefore never more than two-thirds fill.

DRY FILTER.

135. The filter pads should be kept dry and clean or frequently renewed. Silicate cotton is the best material.

COATING CARBIDE FOR ACETYLENE LAMPS.

136. As is commonly known, the expensive car headlights usually employ a special coated carbide, free from dust, which avoids choking of the fine passages which enter into the design of every acetylene lamp. A cheap makeshift coating is obtainable by damping the lump carbide commonly sold with paraffin; this prevents dusting, and with carbide so prepared it is safe to fill the lamp weeks before it is used, and to always carry a charged lamp on the machine. Its sole drawback is that gas is not generated quite so promptly when the water is turned on.

(To be continued.)

The Lloyd Motor and Eng. Co., 132, Monument Road, Birmingham, have just issued a price list of parts and engine replacements for L.M.C. motor bicycles. The same parts are also suitable for Quadrant engines made by the late Quadrant Cycle Co., Ltd., of Birmingham.

Glencroe, Glencoe, and Glen Finnart.

IT occurs to me that the letters which have appeared in *The Motor Cycle* since the publication of the article "By Mountain, Glen, and Loch" require more in reply than the usual letter to the editor. I have also received personal requests to give a comparison between the three hills as mentioned above, as they are considered to be amongst the worse to be found in the Western Highlands.

First, let us take Glencroe and Glen Kinglas, which I have already partially described. The road through these glens is narrow, very zigzaggy, lumpy, badly cut up (especially at the "Rest" bend), and between the banks of Loch Long and the "Rest and Be Thankful" stone it rises 880 feet in four miles. Of this rise 480 feet occurs within the last mile, in which mile, therefore, the average gradient is 1 in 10, and for a stretch there is 1 in 8 and 1 in 6. To add to this, there is the almost insurpassable hairpin bend just at the spot where it is least wanted.

Contour Section of Pass of Glencoe.

Personally, I have never ascended Glen Kinglas, but from my experiences in descending I should say that, although not quite so stiff as Glencroe, it would, nevertheless, be a terribly difficult test for the average motor bicycle. The total rise is almost the same as at Glencroe—to be exact, 820 feet in 4½ miles—but the maximum rise per mile is only about 300 feet, which occurs near the summit. There are, at the same time, several fairly easy stretches, which would give the engine an opportunity to accelerate.

The Pass of Glencoe.

Let me now turn to Glencoe (the scene of the massacre). The surface of the road is generally very bad indeed—decidedly worse, I should say, than Glencroe—but the gradients are not by any means so severe as on the "Rest" hill, except just at that point where occur the two dangerous bends. An excessively in surface. I would say as regards their "climb- what Glencoe lacks in gradient it certainly makes up it surface. I would say as regards their "climb-ability" Glencroe and Glencoe are almost equal—in other words, the motor bicycle that can climb the one ought to be able to climb the other. In Glencoe the total rise in the glen itself is 850 feet in six miles. At its worst part it rises about 330 feet in a trifle under a mile.

A Mile of 1 in 8.

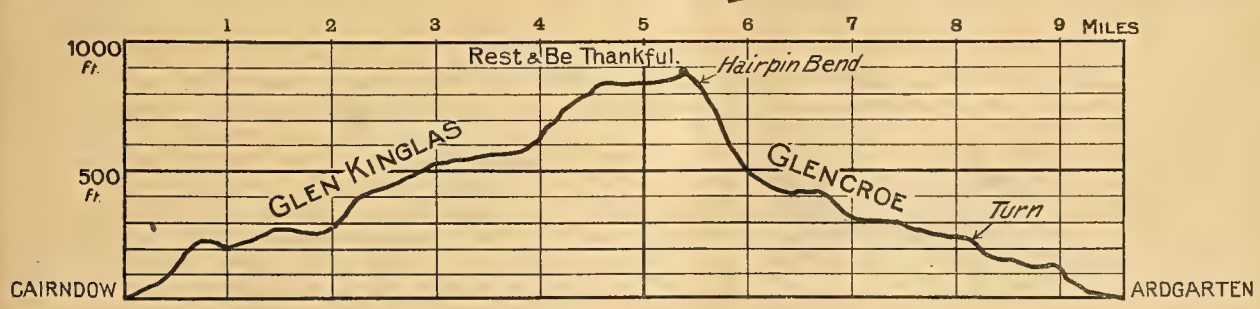
Now for Glen Finnart! 550 feet in seven furlongs, or an average of 1 in 8.4! Isn't that bad enough, even without taking into account that the bends are enough to make a motor cyclist's hair stand on end, that one has to negotiate a huge mud patch at the foot of the hill (caused by a badly drained spring), and that the road is narrow and the surface wretchedly soft? Yes, Mr. H. G., I shall be delighted to arrange, if at all possible, to witness your attempt to climb this almost unknown hill. If any machine ought to get up it is a two-speed geared twin Vindec.

To reach Glen Finnart from Glasgow there is no other route than that taken my me, viz., through Glencroe, etc.

"Argyllshire" in *The Motor Cycle* of December 25th has struck the nail on the head by suggesting the Holy Loch, Loch Striven, Loch Ridden, and Loch Fyne route as a test for manufacturers. The worst part of this track (I say track intentionally) is between Loch Ridden and Otter Ferry on Loch Fyne, where there is a little pimple over 1,000 feet high to climb in a distance of two miles. I have never been up it per motor cycle, but from repute it seems to be very much worse than even the Glen Finnart Hill.

I hope this year will see more adventurous Southeners spending their vacations touring the "Land of the Mountain and the Mist" than there have been in the past. It's a grand country for the hill-climber, but the man who wants to cover his 200 miles per day had better not cross the border. For the information of motor cyclists who may be on the look-out for a hill of something more than the usual dimensions let me suggest that precipice between Tornapress and Applecross ("The Contour Road Book of Scotland," Route 330), where the road ascends *over 2,000 feet in five miles*, or an average gradient of 1 in 13. Think of that, ye Sassenachs!

T. C. MAITLAND.



Contour Section of Rest and Be Thankful Hills, Glencroe and Glen Kinglas.

Letters to the Editor.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Ball Bearing Engines.

[3037.]—In reply to letter 2991, I beg to say that I have had a good deal of experience with the Rover 8 h.p. and 20 h.p. cars, which are fitted with ball bearings throughout.

A broken ball is a rare thing, and when such a trouble does occur you get plenty of notice in the shape of a most unpleasant grinding noise.

I consider the gain in efficiency well worth the little risk.

J. STUART WHITE.

Cyclists and Motor Horns.

[3038.]—Having read your article, "Cyclists and Motor Horns" in *The Motor Cycle* of December 18th, I believe it will be interesting for you to know that here in Holland we have a law known as the best motor law in Europe. The bell only for cyclists, the horn only for motorists, and no speed limit; but everyone is punishable who drives his car, motor cycle, or push cycle in such a manner as to endanger other users of the road. The use of a siren is forbidden in towns. Those are the principal points in the law.

Believe me, with international motor greetings,

Amsterdam. A. CITROEN.

The Organisation of Motor Cyclists.

[3039.]—There seems to be no object in forming a new ruling body if the A.C.U. can cut its useless association with the Motor Union and draft an attractive and workable scheme of its own. What is wanted is the combination of the 60,000 odd motor cyclists with a good executive, to see that their rights are duly protected in matters legislative and legal, and their individual interests looked after. The first point is the cost. Those 60,000 motorists could not object to pay 1s. per head per annum for such services, and the resulting £3,000 would go a long way in furthering their interests. Where local clubs exist they should be used as the local branches of the A.C.U., and induced to work for the centre; such wheelmen as do not care to join a club could join the Union direct, the cost to them being exactly the same (1s. per head) as would be paid by clubs on behalf of their members.

Some short time back it was written in the *A.C. Journal* that what was wanted was an energetic secretary who would devote the whole of his time to the work of propaganda and organisation, and such a man the A.C.U. no doubt have in the person of Mr. Straight. Another thing that is wanted quite as much as friendly criticism and suggestions are offers of active help, and if I can be of any assistance whatever to the A.C.U. in developing the organisation in the Midlands, my services are very heartily at its disposal.

C. F. VAUGHAN.

[3040.]—Mr. R. E. S. Spender kindly gives his views on this matter, and I think the first part of his letter calls for a reply. Your correspondent does not quite know my mind, but I can assure him that my idea is, and always has been, for a strong central organisation, and I think the right way to get that is for clubs to become affiliated and thereby form a strong union.

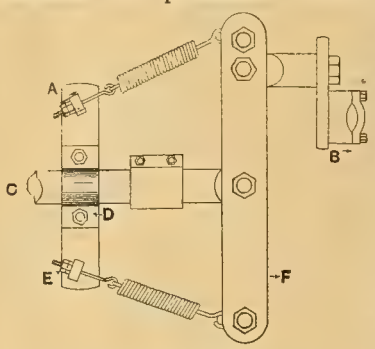
We must have the material for the organisation, and I think the best place to get it from is from clubs. The material wanted is motor cyclists who are sportsmen; by sportsmen I do not wish to imply those who are always trying to win some trophy—myself, for instance. I have never yet ridden a motor cycle in a competition, yet I hope I am a sportsman. The motor cycle organisation, to be strong, must embody the cream of the motor cycle clubs. A few men from each club with experience and commonsense will make a foundation to work upon, then all the other objects can be added. I think I have stated in this journal some of the things which could be taken in hand; there is, of course, a long list, we all know what they are, because we know the need of them.

As to our being in the dark ages (as far as organisation goes) this is quite correct. I have said this for years, and the party responsible for this is the motor cyclist himself. Throughout this agitation there has been too much apathy, too much sitting on the gate to see which way things would go. Some people do not want to trouble. It is all too true. I have written to some clubs three times before receiving an answer to the first letter. Even of the committee elected at Lincoln not half of them have done anything to justify their election; no wonder we do not progress as we should. However, the motor cycle has a big future before it, and let us hope that amongst the new users will be some who will take an active part in the work waiting to be done.

JNO. H. HALL.

Sidecars and Side-slip.

[3041.]—The following simple tip may be of some use to owners of the Montgomery sidecar. It is so childishly simple that I am almost ashamed of bringing it to your notice, and doubtless the professional builder of cycles will find occasion for supercilious sneers. The sidecar I came into possession of was an ancient contraption with compensating joints. On greasy roads, although a slip of large amplitude is uncommon, yet the lively excursions of the back wheel were disconcerting in traffic. To check this, without destroying the undoubtedly advantageous compensating property, I lengthened up and down the outside member of each pair of links F by which the car is suspended from the bicycle, fastened a piece of ⅜in. round iron C between at each end, and stretched springs from these bars to the frame. By making the tension on the springs adjustable, the bicycle is held vertical, and the strain on the springs made suitable to the weight of bicycle and rider. I enclose a rough sketch, which will indicate the principle. The springs used were ordinary front fork suspension springs, about 6in. long and ⅞in. diameter, costing 2s. each.



View from rear.

A. Flattened stud.
B. To bicycle.
C. To sidecar.
D. Clip to frame.
E. Check nut.
F. 1″×¼″ flat

The improvement in steering and action on slippery roads is beyond question. The joints of the attachment need to be slack and well oiled.

S. O. S.

Electric Vulcanisers.

[3042.]—With regard to the large number of small electric vulcanisers which we understand are being sold at the present moment, and which are being sold as suitable for vulcanising covers or tubes in conjunction with ordinary

ignition accumulators, we give you a word of warning, as the general public may not be aware of the effect these vulcanisers have on their cells. The one or two vulcanisers we have tested have taken about four ampères of current, and maintain this consumption throughout the vulcanisation. Now this consumption is too excessive from an ignition accumulator of anything under 40 ampère hour capacity, or even at that capacity, and it must invariably follow that, if these vulcanisers are used in conjunction with accumulators whose ampère hour capacity is under 40, the plates will very quickly be ruined, and that trouble will ensue.

In order to cope with the demand which is increasing for an accumulator suitable for vulcanising purposes, we have issued an accumulator of 40 ampère hour actual discharge, or it would nominally be known as a 60 ampère hour ignition accumulator. This is specially suitable for vulcanising purposes, and the plates are specially made for rapid discharge, and are of massive construction, very carefully pasted and treated to prevent any possibility of damage due to the high discharge rate they will be worked on.

This battery will be known as the Castle vulcanising battery.

We think it most essential that the general public ought to know exactly what will happen if they use these vulcanisers with small capacity accumulators, and they ought to be well warned when they propose to buy them of the damage which will accrue in using them with small capacity cells. UNITED MOTOR INDUSTRIES, LTD.

Hill-climbs Vetoed.

[3043.]—In view of the decision of the .R.A.C., it would still be quite possible to select hills for competition between lightweight machines of, say, 1¾ h.p., on which it would be impossible to exceed the legal limit, on account of the gradient and sharp turns.

I enclose you a photograph of a hill which I have climbed with pedal assistance on a F.N. lightweight, but which would be very difficult to get up on a heavy machine. School Road, Ore, is one of the most difficult hills I know. The gradient is probably steeper than the steepest part of Pebble Hill, which I have climbed on same machine. The start has to be made from the grass at the bottom of the road. Very little pace can be got up, on account of the steepness at the start and the sharp bend to the left. An idea of the gradient can be better obtained by looking at the picture taken from the top of the hill, through a magnifying glass.

I advise readers not to ride down School Road, as the road ends abruptly, without fence, with a sheer drop into the valley below.

W. GETTING.

The T.T. Race and Hill-climbs.

[3044.]—I think the suggestions of "Douglas" respecting the 1908 Tourist Trophy Race are very much to the point, but with regard to petrol allowance, I think there should be a limit, but an easy one, say ninety-five miles per gallon for lightweights, eighty for singles, and seventy for twins. This would prevent the use of "freak" carburetters using abnormal quantities of petrol, which, while being suitable for utmost speed and power, would really be impossible for ordinary touring work. After all, the average motor cyclist is not particular to a mile or so, and if the winner of each class kept within some fair limit such as outlined above, the results would be more comprehensive than giving the names of the winning machines with the amount of petrol consumed.

By the way, while on the subject of the T.T., I notice in "Ixion's" comments this week that one of the riders changed his lubricating oil during the race. It would be interesting to learn how this change was effected, as I was most emphatically told that no filling up with lubricating oil would be permitted after the start.

Re "Hill-climbs for 1908," it seems to me that if these are to be barred, half the members of motor cycling clubs will soon resign, as there is no doubt that these hill-climbs keep the clubs alive during the season. Possibly the R.A.C. only had cars in their mind when taking this action, and I sincerely trust this may be the case. W. A. JACOBS.

Motor Cycle Pacing and Racing.

[3045.]—I read the excellent article by G. A. Barnes, and can fully endorse his remarks *re* the decline of cycle racing in this country. It appears rather strange to me why the promoters of cycle race meetings do not sandwich motor cycle paced and motor cycle races between the other events. I have been told the N.C.U. do not allow motor cycle pacing in open events on account of danger to competitors, but I cannot see that with suitable restrictions it would be so. And, after all, most sports have an element of danger; for instance, boxing, horse racing, football, etc.

JACK MEADOWS.

The A.C.C. Council Meeting.

[3046.]—With reference to the letter [No 3007], December 18th] from Mr. Straker, the hon. sec. of the Hull A.C.C.

Mr. Straker refers to the A.C.C. as "the ruling body." In view of the fact that the great bulk of motor cyclists refused to have anything to do with the A.C.C., the term "ruling body" is somewhat a misnomer.

Mr. Straker uses the words "so-called reform party" as a sneer. If it is not a reform party, will he then say what it is? Or which is the reform party?

According to Mr. Straker, it has been reserved to him to point out that everybody but himself imagined that they were talking about cycling, and not motor cycling. That important point having been cleared up, will Mr. Straker say if the position is then in any way changed?

Mr. Straker's fourth paragraph demonstrates that he is intensely annoyed at not being one of "the eight." Whether that is his fault, or whether he has not been fitted by nature for such a position, I do not know.

Perhaps Mr. Straker will kindly say why he did not suggest to the A.C.C., before "the eight" got so obnoxiously to work, a plan by which the thousands of unaffiliated motor cyclists would be attracted to that "ruling body." If he had done so, there would have been no occasion for "the eight" to get to work, and Mr. Straker would have reaped the credit which now belongs to them.

A motor cyclists' union is what is wanted, and they mean to have it, whether the "ruling body" (save the mark!) likes it or not. CHAS. F. VAUGHAN.

View from top and bottom of School Road, Ore, near Hastings. (See letter No. 3043.)

By Mountain, Glen, and Loch.

[3047.]—Your correspondent, "Argyllshire," is another sceptic *re* the capabilities of a first-class 5 h.p. twin machine fitted with an efficient two-speed gear.

Before continuing further, let me assure "Argyllshire" that I am *not* a hill-climbing enthusiast, and I should never think of taking the "choice" (?) route he describes simply for a pleasure trip.

There is no pleasure for me (nor any other rider who thinks much of his mount) in hearing the engine roaring on the low gear up a bad surfaced hill, and to deliberately choose such a route as described would be, to say the least of it, hard lines on the long-suffering engine, not to mention the

tyres. No, "Argyllshire," I should want well paying to tackle your "well chosen" route.

My "ideal" mount (which is now in existence) is a machine that can be started without a run, and that will take the rider anywhere and up any hill without the exertion of pedalling. It would be an impossibility for me to push my Vindec up any hill, were I unfortunate enough to come across one that was unclimbable, yet I never pick my roads when mapping out a tour.

The Vindec gear gives a fifty per cent. reduction, and although I have several times driven a fully loaded sidecar up a stiff gradient for some miles (on the low gear), I have never had a stoppage due to overheating of engine (or rider). It is the knowledge of what my machine has done that causes me to repeat that the Vindec, with two-speed gear can climb Glenfinnart Hill with ease.

In conclusion, if "Argyllshire" had seen and tried the brakes fitted to the latest machines, he would not have written in such a deprecatory tone upon this subject. The brakes fitted to most 1908 models are extremely powerful, and quite sufficient for all emergencies. The makers of the Vindec, Roc, N.S.U., and other two-speed gears might consider "Argyllshire's" appeal. Any modern twin fitted with one of the above gears should be capable of climbing anything, even in Argyllshire. HUGH GIBSON.

Another Magneto Mystery.

[3048.]—We read with interest the article by Mr. A. Wharton Metcalfe in the last issue of *The Motor Cycle* under the heading of "Another Magneto Mystery," and we are forced to come to the conclusion that there is very little mystifying about it, and that the described effect could only have been produced by some defect in the conductivity of the contact breaker. Exactly how this could occur it is impossible for us to say, of course, without having an opportunity of testing the contact breaker as it is taken off the machine, but had it been electrically tested, we feel sure that an interruption in the circuit would have been made apparent. In all probability the trouble was due to a slight friction on the pin of the bell crank lever, and when examined it would ordinarily appear to be sufficiently free to make contact with the platinum pointed screw, and when revolving rapidly the return movement would, in all probability, be insufficiently fast to make contact; or, on the other hand, it may be that the platinum pointed screw that is fixed to the bell crank lever had become slightly worn, and grease having penetrated between the metal of the screw and the metal of the bell crank lever and caused a partial, and perhaps even intermittent, insulation.

This is perhaps a point that would be worthy of your bringing before your readers, as it is not altogether an isolated case, but, in any event, can scarcely be called a mystery, as it should be very easily discovered.

CIE. DES MAGNETOS SIMMS-BOSCH, LTD.

Free Engines on Motor Bicycles.

[3049.]—With reference to the paragraph *re* above appearing in "Hints and Tips, by Road Rider," in *The Motor Cycle* of December 25th, I shall feel greatly obliged if you can spare a corner in your valuable paper for a few remarks I should like to pass regarding "Road Rider's" criticism.

I consider that "Road Rider" shows distinct prejudice. He does allow one point in favour of the free engine, viz., that of added convenience in handling when the machine is at rest, but to my mind this is a rather doubtful compliment, and I think that if he could not bring himself to admit that the free engine had any other advantage, he ought at once to have condemned the whole affair as a failure.

If a free engine were fitted to a featherweight machine, I might believe what "Road Rider" says about the trouble of starting, but take, for example, the machine which I am at present riding, viz., a 5½ h.p. twin Rex, Roc free engine. I never have any trouble in starting with the handle, but I would enjoy seeing "Road Rider" pushing off on an incline with a cold engine. I am afraid he would warm up sooner than the engine.

That a machine which is a little out of order "is far more likely to start with a push than with the handle" is a statement which I would be glad to have explained to me.

As far as "possessing a clutch to slip" is concerned, as already stated I possess a clutch, but not to slip, and if "Road Rider" has enough of an engineer in him to enable him to know how to adjust such a piece of mechanism he will experience little trouble from slip. I have felt my clutch offer to slip on a very steep incline, but all I had to do was to apply a little extra pressure to the lever, at the same time pushing down the catch with the toe of my boot.

Regarding the use of the free engine in traffic, I at least believe in taking the full advantage of what I pay for.

FAIR PLAY.

Outside Flywheels.

[3050.]—I was pleased to see Mr. Ricardo's letter on "Outside Flywheels." Appearance is the only point against (?) this type of machine, and if the engine is properly designed, this point should not exist. It is the best arrangement mechanically, and without doubt is much lighter, more flexible, and efficient.

Mr. Hinton suggests there is more resistance caused by the crank and balance weight churning the oil than with internal flywheels. This is obviously absurd. In the first case, the radius of the moving parts is approximately 2½in., and in the case of internal wheels about 4in., with practically their entire circumference dragging through the oil.

The fact is well illustrated by the remarkably free running of an O.F. machine with exhaust lifted.

Other advantages are the use of flywheel for testing compression, and running "light." It also provides an efficient brake. The suggestion of mud throwing is weak and old. A pulley is practically as efficient in this respect.

Mr. Hinton is right in stating a smaller shaft can be used with internal flywheels, but, surely, this is no advantage; with a larger diameter of shaft the bearing surface is increased. From experience, I suggest the best way to fix an outside flywheel is on a 1 in 8 taper without key.

In 1903 I designed an engine 3¼in. × 3¼in. with 12in. outside flywheel, weighing 18 lbs.; total weight of engine, 44 lbs. The flywheel was fitted on cone with small key. Trouble arose by the key shearing half a revolution in fifty miles. A new shaft was made with cone 1 in 8, and no key fitted, since when no trouble has been experienced.

From the formula given by Mr. Ricardo, the flywheel effect is almost double that of two wheels, 8in. diameter, weighing 32 lbs.

Another point Mr. Hinton raises is the liability of bending the shaft in the case of a side-slip. I have been over more times than I consider absolutely necessary, and the footrests have always prevented damage to flywheel.

With a hardened and ground crankshaft the total cost of engine would possibly be rather more than with the internal arrangement. As an alternative, I would suggest making the crankshaft in two pieces with a cone where crank pin joins two to one side crank web. A hardened bush could be driven on crank pin, and a split bottom end dispensed with. (Again lessening the diameter of crank chamber and weight of connecting rod.)

This gives a solid forging from crank pin to flywheel, and practically no strains are taken by the cone joint. Ball bearings might with advantage be used for the crankshaft, where they are perfectly reliable.

It would be interesting to hear some real disadvantages of the outside flywheel, if your readers can name any.

G. DE HAVILLAND.

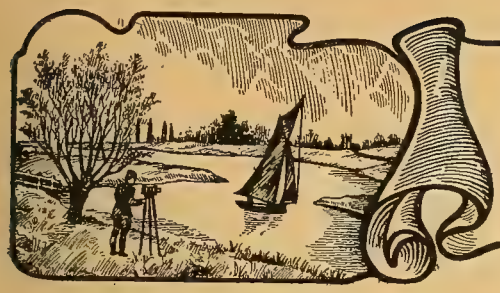
SUMMARY OF OTHER CORRESPONDENCE.

Mr. E. P. Magnet, 198, Calle Real, Ermita, Manilla, Philippine Islands, is desirous of purchasing an English motor bicycle, and would like makers to send him their catalogues.

EXPERIENCES WANTED.

"C. T." (Newcastle-on-Tyne) would like to hear from riders of Roc machines with clutch and two-speed gear.

W. B. Armley would like readers' experiences of the 4½ h.p. twin-cylinder Minerva, particularly with regard to the usefulness or otherwise of the detachable combustion heads. He would also like to know why this engine cannot be fitted with a magneto.



Club Competitions.

HOW THEY MIGHT BE IMPROVED.

By J. T. WARD (Manchester Motor Club).

IT is extremely gratifying to all sportsmen, and particularly motor cyclists, to find the sporting side of motor cycling gaining in popularity. The club would be difficult to find which did not last year organise and carry out successful and harmless competitions, such as hill-climbs, reliability runs, speed judgment tests, fuel consumption trials, gymkhanas, and the like. Certainly those who have not (if any) would be considered wanting in enterprise, for as far as my experience goes they are the life and soul of successful club life. The members are brought together, taking a common interest in the events, whether competitors or not, acquaintances are formed or renewed, and from a "meet" point of view they are far superior to the ordinary club run, being equalled only by the annual general meeting or annual dinner and prize distribution.

Motor cyclists are sportsmen to the backbone; even on the road it is difficult to repress and keep within bounds the sporting instinct. Although road racing is outside the pale of the law, motor cyclists have evolved forms of competition hitherto unknown, which, while interesting and valuable to students and engineers in motor cycle construction, possess a sporting and competitive side.

The Delay in Announcing Results.

But with the rapid growth in popularity of the competitions referred to, complications have crept in—perhaps inseparable in the case of a new sport. The complications in the main are due to the vexed questions of determining the exact horse-power of a given machine, and the evolution of a satisfactory handicap formula in which weight of machine and rider, time, and horse-power must be taken into consideration. In some cases these formulæ have become so complicated that only a few of the club officials have any knowledge of the methods of working out a result. It may even be that the duty of so doing is confined to one person, who thus has the whole of the club members, competitors, and spectators at his mercy. At the conclusion of, say, a hill-climbing competition, he may feel disinclined to immediately set about working out complicated figures which may take him some hours of hard work to get at results. He may want his tea or have an appointment miles away, or—in case he has been a hard-working official during the afternoon, timekeeping, acting as judge, marshal, or what not—he may feel too tired. The competitors are informed the times will be worked out on *Sunday* or *Monday*, and the result is numerous heartburnings and chagrin all round.

Who has not heard that oft-repeated "Who's won?" from the lips of scores of spectators, or when reaching the village or town near the scene of the competition. The lay mind cannot grasp the seeming absurdity of the thing when the reply is, "We don't know yet!" Yet there is no reason why the winner's name should not be immediately forthcoming if the results were worked out as the *competition proceeds*, which they ought to be.

To permit Immediate Announcement of Results.

My suggestion is that *several* persons in the club should be deputed to work out these times, and they should have no other duties to perform. They should be stationed at the "finish" with the finishing timekeeper, and a special messenger should carry the starting times to them, so that results could be immediately arrived at.

To delay the publication of results for a day or two is unfair both to competitors and club members, not to mention the spectators, while in the case of motor and daily press journalists and photographers it is little short of a scandal. Several cases have recently come before my notice where reporters and journalists have journeyed long distances, wasted nearly the whole of the day, only to return as wise as to any result as when they set out. A photographer recently attended an important club hill-climb, took about a score of photographs, hurried home, spent all Saturday evening developing and Sunday in printing and getting them away to the various journals, only to have them all returned because no report of the results was obtainable.

Some club officials may argue that they did not ask the reporters or photographers to attend; if they did so they did it at their own risk. But this is not the point. It is unfair to the competitors, it is courtesy to give the press every facility, and last, but not least, it is essential that every "live" club should publish its doings and so attract new members.

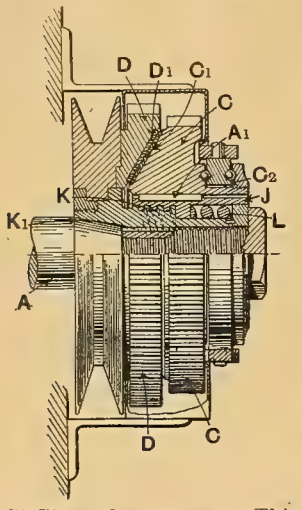
In regard to the formula for determining horse-power, it seems a pity one particular standard could not be adopted. The Royal A.C. formula is $\frac{D^2 \times N}{2.5}$, while a number of clubs on the same basis divide by 3 instead of 2.5. Others, again, take stroke into consideration, and others even the number of normal revolutions. Then it is obviously wrong to have the same formula in motor cycle competitions for a twin-cylinder engine as a single-cylinder. If three inches bore and stroke in a single-cylinder machine gives off 2¾ h.p., a twin-cylinder engine of the same bore and stroke does not give 5½ h.p. In one formula covering both classes, the "single" has the advantage for handicap purposes all the time, as recent events have proved.

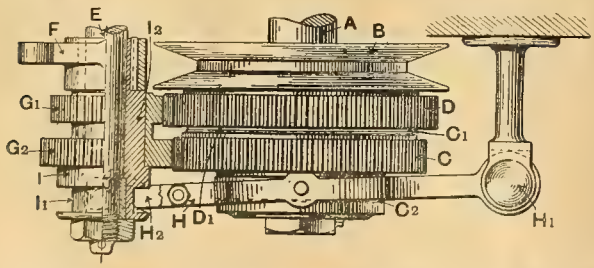
RECENT PATENTS.

By ERIC W. WALFORD, F.C.I.P.A.

A Two-speed Gear.

ENGINEER-LIEUT. CHARLTON, of H.M. Yacht *Victoria and Albert*, Portsmouth, is the patentee of this construction. The engine shaft A, after passing outside the crank casing, passes freely through the pulley or chain wheel B, by which the drive is taken to the road wheel, and carries at its end a pinion C so fitted that while it must rotate with it, it can be moved upon the shaft longitudinally by the feather A'. This pinion C carries also one member C' of a friction or other clutch C', D', arranged to be engaged with or disengaged from the other member D' of the clutch, which may be carried upon or in a toothed wheel D secured to or forming part of the pulley B. Pivoted upon a stud E upon the frame of the vehicle, or, preferably, upon the engine casing, is an arm or lever F carrying a pair of idle wheels G' G² secured together upon one shaft or formed in one piece, or otherwise so connected that they turn together. The boss of the lever F is keyed upon an extension of the sleeve I², upon which wheels G' G² are free to turn. This sleeve is bored eccentrically so that partly rotating it by means of the lever F brings the wheels G' G² nearer to or farther from the engine shaft A. The pinion C upon the engine shaft has a suitable groove C² adapted to receive the jaws or equivalent of a striking lever H pivoted, to the crankcase or otherwise, at one end H', and having a second pair of jaws or equivalent H² at its other end to engage in a cam groove I' in a cam I fixed to or forming part of, or otherwise moving with the previously mentioned lever arm F. The operation is as follows: Assuming that the low gear is to be used, the lever arm F is moved towards the engine shaft A, whereby the pair of wheels or pinions G' G² carried by the arm is engaged respectively, the large one G² with the engine shaft pinion C, and the small one G' with the toothed wheel D upon the belt or chain pulley. This operation rotates the cam I, so that the cam groove acting through the lever H withdraws the clutch member C' of the pulley C from the clutch member D' of the belt pulley B. In this position the mechanism is that of the ordinary back gear of a lathe, the small engine shaft pinion C engaging with the

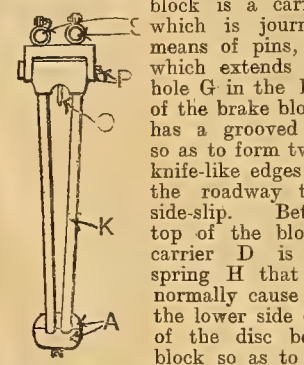


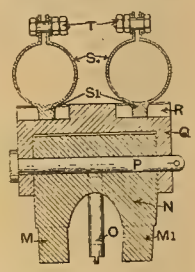


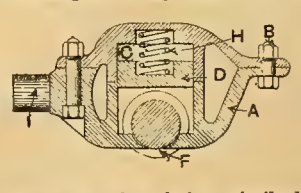
larger G² of the two wheels, and the smaller G' of those two wheels engaging the toothed wheel D upon the belt pulley B, so that the latter rotates at a slower speed than the engine shaft. When it is desired to drive upon the high gear, the lever arm F is moved so as to disengage its pair of toothed wheels from the other two, while the cam I now operates on the striking lever H to engage the clutch member C' of the engine shaft pinion C with the clutch member D' of the pulley, whereby the latter is connected with the engine shaft and rotates with it at the same speed and the high gear is obtained. The arrangement of the various parts is such that a free engine can be obtained by the wheels G' G² being out of engagement with the other two, and the clutch members C' D' disengaged at the same time.

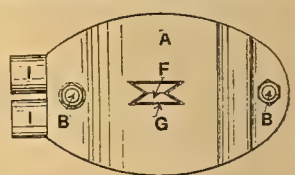
A Skid and Emergency Brake.

THIS invention has been patented by Mr. C. J. Arnell, of 13, Leinster Avenue, East Sheen, Surrey, and consists of a brake, which can be applied to the ground to prevent side-slip, or used as an ordinary brake in cases of emergency. The brake shoe comprises a hollow metal block A made in two parts, secured together by bolts B. Mounted to slide vertically within a cavity C in the said block is a carrier D, in which is journalled, by means of pins, a disc F, which extends through a hole G in the lower side of the brake block A, and has a grooved periphery so as to form two annular knife-like edges to engage the roadway to prevent side-slip. Between the top of the block A and carrier D is a coiled spring H that serves to normally cause the disc F to protrude through the lower side of the block A, but will permit of the disc being forced upward into the block so as to allow of the lower side of the latter being brought into direct contact with the roadway when the block is depressed with sufficient force. The block A is provided with two cylindrical extensions I I, by which it is connected, as by brazing, to two tubes K K' forming the long arm of a bell crank lever, the upper ends of

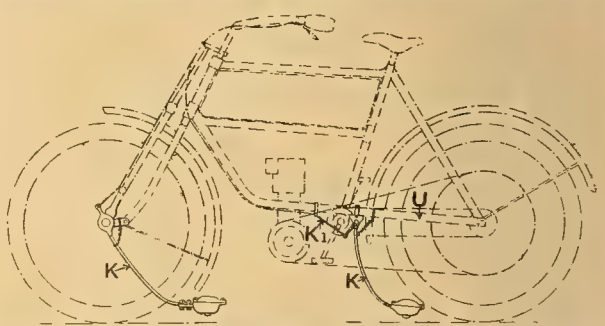








the two tubes being similarly connected to two extensions M M' of a block N, in which is fixed, as by screwing, a pin O that forms the short arm of the lever. The lever thus formed may be pivotally connected to the framework of the bicycle. In the example, the block N is pivoted by means of a pin P within a bifurcated block Q, which has formed in its upper



side two co-axially arranged cylindrical grooves R, into which is slid endwise correspondingly formed cylindrical extensions S' of two split clamping rings S that are adapted to be sprung over and secured by nuts T to the pair of rods U forming the back fork of the machine. This mechanism is operated by any convenient means within easy reach of the rider.

A. W. Wall, Ltd., advise us that they are willing to guarantee the Roc duplex frame as amply strong for use with a sidecar attachment.

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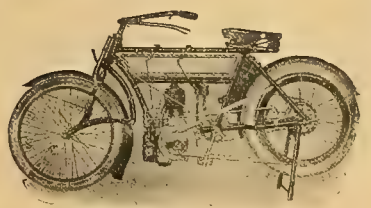
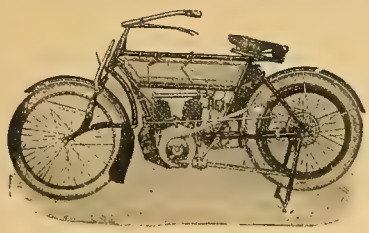


Model H, 3½ h.p., 80 × 98.



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IT SAVES POWER.

YOU CAN'T GET AWAY

from solid facts. Here, in black and white, you have two incontrovertible facts—the superiority of leather in motor cycle belt manufacture, and the pre-eminence of the WATAWATA. The following letter is of indisputable veracity, was totally unsolicited, and must be of interest to every motor cyclist.

3, Princes St., Widnes, Lancs., 3/11/'07.

Dear Sirs,

It is with a great amount of pleasure I have to write you with respect to the ¾in. WATAWATA belt I have been using for the last year and three-quarters. I can say without fear of contradiction that I have ridden over 20,000 miles with the same belt, and so recently as last Thursday I rode from Clock Face, St. Helens, to Rochdale, in a drenching deluge of rain, and my belt never slipped. I may state I am about 14 stone and the machine about 170 to 180 lbs. weight, and then I never perceived engine race at all. I put machine up for the night at Rochdale and never gave belt or machine attention. Friday morning I started for Halifax against a strong head wind from N.E., and was sent on the road by Blackstone Edge; when nearly halfway up my Watawata broke for the first time—I think this is a record to be proud of. I may say I rode several miles 6 weeks ago in blinding rain and it never slipped at all. You may do as you like with this as I am a private rider and get my living on my motor practically and have no interest in any motor firm whatever.

Yours truly,
W. H. HALL.

LONDON:
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Watawata

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HALIFAX Motor Exchange.—As agents for the Rex Co., we have a few shop-soiled 1907 3½ h.p. singles, £20; 5 h.p. twins, £23; De Luxes, black and gold, £35; 3½ h.p., magneto, £23; cannot repeat these.

HALIFAX. — We hold the finest and largest stock of second-hand motor cycles in the world. 100 in stock.

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HALIFAX. — 1908 35 guinea magneto Rex; liberal exchange allowances; write us quickly; pounds saved.

HALIFAX. — 1908 5 h.p. Rex de Luxe, twin tyre, Roc clutch, and two-speed gear; 55 guineas; liberal exchange.

HALIFAX.—1908 2¾ h.p. Rex, lightweight, Simms-Bosch magneto, magnificent hill-climber; 25 guineas.

HALIFAX.—Very fine 3½ h.p. Rex, 22in. frame, trembler coil, vertical engine; £11 5s.

HALIFAX.—5-7 h.p. Peugeot, Truffault spring forks, and fine sidecar, magnificent condition; £25.

HALIFAX Motor Exchange, 16, Westgate, Halifax. Telephone, 766. Magneto twin Rex, perfect, and unridden; £28 10s.

HALIFAX Motor Exchange. — Extended payments without extra charge.—16, Westgate, Halifax. Telephone, 766. High grade machines purchased for spot cash.

TWENTY

splendid machines on offer this week, the pick of the second-hand market. Some are s iled only. Each is accompanied by a signed certificate showing the machine to be in perfect running order, and free from any defect.

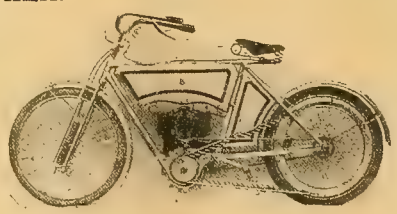
TRIUMPHS.

One **3 h.p.**	magneto, like new, ..	£30	0
Two **3½ h.p.**	,, excellent order	35	0
One **3½ h.p.**	,, Roc clutch & gear	40	0

N.S.U.

3 h.p.,	Accumulator Ignition ..	£15	0
3 h.p.,	Magneto	17	10
3½ h.p.,	Magneto, spring fork ..	22	0
3½ h.p.,	Magneto	21	0
4 h.p., Twin,	Magneto	30	0

REX.



3½ h.p.	John O' Groats model ..	9	10
5 h.p. Twin,	Cantilever seat ..	18	10
5 h.p.	,, Magneto	17	0
Coventry Quadrant,	3½ h.p., 1908, soiled only	35	0

Note the following—(also certificated).

Quadrant, 3½ h.p., 1907	£25.
Brown, 3½ h.p., 1907, as new	£30.
Vindec Special, 3½ h.p., 1907, 2 speed gear	£30.
Roc, 1907, 4 h.p., clutch, hand starting ..	£32.
Rex Litette, 1908, new, soiled only ..	£70.
Riley Tricar, 9 h.p., 3 speeds ..	£52 10s.

ACCUMULATORS. 1908 type, 25 amp. **12/6**
Send for sample. Best value in England.
ELECTRIC HORNS. 1908 type, with press button .. .. **10/6.**
HEADLAMP, separate generator .. .. **18/6.**
Do. Searchlight, minature car, powerful magnifying reflecter .. .. **30 -**

1908 Lists now out.

Premier Motor Agency
Aston Road, Birmingham.

MOTOR BICYCLES FOR SALE.

HALIFAX.—More 1906 Rex twins, special price £19 19s. See the astounding records these magnificent machines are making; £15 10s. allowed for any approved 1906 model.

HALIFAX.—Special value. New Year gifts. £2 10s. deposit and six monthly payments of 25s. secures 3½ h.p. Rex, 2 h.p. Minerva (26in. by 2in. Clinchers), 2 h.p. British Standard, 2 h.p. Simms, 3 h.p. Automotor, 2¾ h.p. M.M.C., 2¾ h.p. Excelsior, 2¾ h.p. Antoine, 2¾ h.p. Ormonde, 2¾ h.p. Kerry, and 2 h.p. Humber.

HALIFAX.—Twenty twin Rexes, some like new; no complicated speed gears required; reduced price £19 19s.

HALIFAX.—3 h.p. Rover, 26 by 2¼in. Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, and sidecar; £25.

HALIFAX. — 5 h.p. Rex, Longuemare, trembler coil, Clincher tyres, Fish-back belt; no offers; £16 16s.

HALIFAX.—1906 3½ h.p. Brown, vertical, M.O.V., Clincher, 2¼ tyres, Longuemare, trembler, frightens policemen; £19 10s.

HALIFAX.—3½ h.p. 1906 Minerva, non-skid to rear, a grand winter's mount; £19 19s.

HALIFAX.—4 h.p. Atelier, 26 by 2¼ Dunlops, spring forks, long and low; bargain, £17.

HALIFAX.—4 h.p. Coronet, 26 by 2¼ Dunlops, Roc model frame, plating and enamel as new; £16.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £18 10s., perfect order.

HALIFAX.—Light low Rex, spring forks, Longuemare, in very good order; £14 17s. 6d.

HALIFAX.—4 h.p. twin-cylinder Werner, 26 by 2¼ Michelins, very smart mount; £18.

HALIFAX.—2¾ h.p. F.N., spray, 26in. wheels, vertical engine, very speedy, good condition; £14 10s.

HALIFAX.—5 h.p. twin Bercley, practically new, twin Brown and Barlow carburetter, 26 by 2½ Clinchers, everything of the best; £21.

HALIFAX. — 3½ h.p. N.S.U., magneto, spring forks; this is marvellous value; £24; new non-skid to rear.

HALIFAX.—2½ h.p. Triumph, vertical, lightweight, trembler coil, fine order and condition; winter price £14.

HALIFAX.—2½ h.p. Jap lightweight, 26 wheels, spray, only done ten miles for tuning up; £23.

HALIFAX.—1907 3½ h.p. Rex, spring forks, footrests, 2½ tyres, practically new, magneto ignition; £23.

HALIFAX.—3½ h.p. Rex, 22in. frame, vertical engine, trembler, good order; snap this, £11 10s.

HALIFAX.—2 h.p. Minerva, mechanical valves, spray carburetter, magnificent climber; only wants seeing; £8 10s.

HALIFAX.—6-7 h.p. twin, Speak very long and low, three months old, can be driven at a walk; £27.

HALIFAX.—See Car and Tricar columns for value; exchanges wanted; liberal allowances.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments; small extra charge.—New address, 16, Westgate, Halifax. Telephone, 766. High grade machines purchased for spot cash.

MOTOR BICYCLES FOR SALE.

2¾ h.p. F.N.; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. Humber, in good running order; £7.—24, Airedale Avenue, Chiswick.

3 h.p. Motor Cycle, in splendid running order; £16.—67, Wellington Street, Woolwich.

2½ h.p. Swift-Ariel, fast; £12 10s.; cycle and cash. — 306, Commercial Road, Peckham.

5 h.p. Vindec Special, 1907.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. Triumph, magneto, every accessory; bargain, £19.—17, Vant Road, Tooting, S.W.

3½ h.p. M.M.C., vertical engine; £12 10s. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin Rex, perfect, new last June; £18; owner going Canada.—21, George Street, Llanrwst.

3½ h.p. Bat, spring forks, new machine; £18 18s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MINERVA (2 h.p.); expert examination; sacrifice £8 10s.—C. Watkins, 104, Church Road, Norwood.

4 h.p. Twin-cylinder Hamilton, very fast; £13 15s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

GUINEAS, 14.—1906 3½ h.p. Rex, rebushed; bargain; approval.—The Wilderness, Swaffham, Norfolk.

3 h.p. Magneto Triumph, 1906 model, in condition as new; £25.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Griffon, spring forks, spares, in good running order; £8 10s.—Peacock, 4, Louisville Road, Balham.

7 h.p. Peugeot, in No. 6 Chater-Lea frame; £18 10s.; opportunity.—9, Shoe Lane, Fleet Street, London.

3½ h.p. Minerva, spring forks, 1907; cash needed; being sued for debts.—91, Melbourne Road, Eastbourne.

5 h.p. Twin Kerry, spring forks, with Liberty sidecar; £22.—Sames, 10, Newcomen Street, Borough, London.

3 h.p. Triumph, ball bearing engine; £18 18s., great bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

SMART 3 h.p. Quadrant, twin accumulators, stand, carrier, spring forks; £12 12s.—Millards, Cycles, Trowbridge.

4 h.p. Antoine, Chater-Lea No. 6, new engine, bike grand condition; £16; buying twin.—50, Beverley Road, Hull.

KERRY, 2¾ h.p., in first-class condition, reliable and comfortable; £13, dirt cheap.—Particulars, Plowright, Bakewell.

BARGAIN. — 3 h.p. Humber, chain drive, spray, trembler, good order; £8.—Hart, 31, Vanguard Street, Deptford.

2¾ h.p. Vindec Special, F.N. engine, very reliable; £14 10s. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. Triumph, 1907, condition as new; £34; approval willingly, or appointment.—The Shrubbery, Tooting, S.W.

4 h.p. Roc, Stevens engine, free engine clutch, magneto ignition; price £21. —Wauchope's, 9, Shoe Lane, Fleet Street, London.

2½ h.p. Brown, good running, new Dunlops, only wants seeing; £7 10s.—B. Dew, 129, Camberwell New Road, London.

3 h.p. Ariel, in particularly good order; £10 10s., splendid cash bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

HARRY MARTIN'S Light Racer, one of the fastest 76 by 76 machines in England. — Full particulars, Harry Martin, East Croydon.

PHŒNIX Cob, magneto, two speeds, as advertised, only few months old, perfect condition, £29 10s.; coach-built passenger Trimo attachment, £5 10s.; any trial given.—Keating, Teville Road, Worthing.

1908 MODELS.

QUADRANTS, MINERVAS, TRIUMPHS, ROCS, all makes supplied, and prices are right.

Cash, Credit, or Exchange. The World's Motor Cycle Mart. Shop-soiled Machines.

3½ h.p. QUADRANT (1908), magneto.	
5½ h.p. REX DE LUXE, magneto, Roc clutch	£32 10
3½ h.p. QUADRANT (1907), spring forks	25 10
3½ h.p. REX (1907), spring forks, spotless	19 0
3½ h.p. REX (1907), spring forks, 2¼ tyres	19 19
4½ h.p. TWIN MINERVA (1907), spring forks	30 0
3½ h.p. MINERVA (1907), spring forks ..	25 10
3½ h.p. TRIUMPH, Dagneto, two speeds	36 0

These are all Ready for the Road.

3½ h.p. BROWN, magneto, classic	£22 10
3½ h.p. N.S.U. (1906), magneto, a picture Four-cylinder F.N., magneto, spring forks	22 10
5 h.p. TWIN ..ERRY, Triumph finish	22 10
4 h.p. STEVENS, low built, Bat pat. ..	14 14
3 h.p. RALEIGH, two speeds, low	12 12
3½ h.p. REX, magneto, spring forks	18 18
6 hp. TWIN REX, spring forks, smart	19 19
5 h.p. REX, spring forks, powerful	16 16
6 h.p. TWIN REX, shop-soiled, spring forks	22 10
6 h.p. TWIN REX, shop-soiled, 2¼ tyres	23 10
3½ h.p. REX (1906), spring forks	15 15
3½ h.p. REX (1906), spring forks, 2¼ tyres	16 0
3½ h.p. REX, light and low, 26in. wheels	11 11
3½ h.p. REX, John-o'-Groat's model	9 10
3½ h.p. REX, spring forks, 26in. wheels ..	12 12
2½ h.p. REX, vertical engine, smart	7 15
3 h.p. HUMBER, very powerful, smart	10 10
3½ h.p. STANDARD, vertical engine, good	7 10
3½ h.p. AUTOMOTOR, vertical engine ..	10 10
3½ h.p. WHITELEY, spray, good order..	8 10
3½ h.p. RILEY, spray, climbs anything ..	10 0
3½ h.p. QUADRANT (1907), spring forks	25 10
2½ h.p. DE DION, spray, good order	8 10
2½ h.p. DE DION complete, less tank ..	6 18
2½ h.p. SPARK, magneto, low built	10 0
2½ h.p PROGRESS, magneto, vertical engine	9 10
2 h.p. CLYDE, vertical engine, magneto	8 10
3½ h.p. COVENTRY EAGLE, reliable ..	9 10
2¾ h.p. ARIEL MINERVA, low built, smart	11 10
3 h.p. ARIEL, vertical engine, low	10 10
3 h.p. CLARENDON, ball bearing pulley	10 10
3½ h.p. CENTAUR, low built, 26in. wheels	12 12
2¾ h.p. MINERVA, spray, fast machine ..	8 10
3 h.p. HOBART, vertical engine, extra..	9 10
2¾ h.p. DE DION WERNER, low built ..	10 10
3½ h.p. KOH-I-NOOR, low built, smart ..	12 12

LIGHTWEIGHTS.—The following machines will climb all ordinary hills, extraordinary hills with slight assistance, and will attain 30 miles per hour on level :

1¾ h.p. MINERVA good tyres, V belt	£4 15
1¾ h.p. QUADRANT, very reliable, handy	5 15
2 h.p. MINERVA, M.O.V., spray, smart..	7 10
2 h.p. LIBERTY, vertical engine, reliable	6 10
2¼ h.p. CENTAUR, very smart appearance	7 10
2¾ h.p. ORMONDE, Antoine engine, smart	7 10
2¼ h.p. VINCO, vertical engine, smart....	6 15

Push cycles taken in part payment.
Cash offers wanted

MILLS-FULFORD SIDECAR, 26in. wheel	£4 18
TRAILER, a pretty thing, good tyres ..	1 15
FORECARRIAGE, coach built	5 15

TRICARS.

4 h.p. TRENT, w.c., open frame, wheel steering, 2 speeds, bucket seats	£25 0
10 h.p. TWIN REXETTE, open frame..	42 10
6 h.p. QUADRANT CARETTE, open frame	35 0
6 h.p. TRIETTE, four speeds, magneto	32 10
5½ h.p. REXETTE, open frame, 2 speeds	27 10

Continental Tyres.	Cover.	Tube.	Continental Tyres.	Cover.	Tube.
26×2	24/-	9/6	28×2	25/-	10/-
26×2¼	25/6	10/-	28×2¼	27/3	10/6
26×2½	29/6	11/-	28×2½	29/9	11/3

Fully guaranteed by makers. Supplied either in beaded or wired edges. Delivery per return. Your old cover or tube taken in part payment. Liberal allowance.

BOOTH'S BELTING.

Made from selected parts of hides. Correct angle, non-stretching, long life, perfect drive. Sample belt on approval on receipt of remittance.
⅜in. 9d., ½in. 10½d., ⅝in. 1/-, 1in. 1/1.
Special terms to the Trade.
Liberal allowance for your old belt.
High-class Motor Cycles wanted for cash.

H. BOOTH Coronet Works WADE ST., **HALIFAX**
TELEPHONE 198Y.

MOTOR BICYCLES FOR SALE.

3½ h.p. Minerva, 1907 standard model, only once used; 20 guineas.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Clyde, splendid order, horn, tools, lamp (separate generator); £12.—Clark, George Street, Ryde, Isle of Wight.

IF You Want Bargains in second-hand motor cycles, you can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London.

QUADRANT, 3½ h.p., in fine condition; £21; Griffon, 2¾ h.p., £10 10s.; Minerva, 2 h.p., £7 10s.—Bellenger, Queen's Buildings, Old Bailey.

3 h.p. Singer Motor Cycle, magneto ignition, in first-class condition; offers. —Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¼ h.p. Fafnir, low built, good hill-climber, in good condition; bargain, £8.—250, Glyn Road, Lower Clapton, N.E.

3 h.p. Chase, Deckert engine; lowest price £15 15s.; Chater-Lea fittings throughout.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

DURSLEY-PEDERSEN, 1907, £19 19s. model, in best condition; trial willingly; what offers? — Tilley, Avenue, Taunton.

FOUR-CYLINDER F.N., just to hand, 1907 model, in excellent condition; £25, lowest.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

TRIUMPHS, 1908; order early; we allow the highest prices for second-hands, 1907 Triumphs particularly.—Parker, Melbourne, Derby.

KERRY, 2¾ h.p., low position, good condition, two accumulators, gas lamp, etc.; £9 10s.—Ward, Consort Villas, Arthur Road, Windsor.

2¾ h.p. Werner Motor Cycle, in good order; £10, or exchange for anything useful.—Shaw, 2, Hudson Street, Belfast, Ireland.

6 h.p. Twin-cylinder Antoine Motor Cycle, very powerful; offers.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

CLARENDON 3 h.p. Motor Cycle, recently thoroughly overhauled, and in perfect condition; £16.—Harry Croft, Fakenham, Norfolk.

2 h.p. Minerva, M.O.V., round tank, B.S.A. fittings; £6 10s.; good light runabout. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

ROC, 4 h.p., Military Model, free engine, magneto, practically new condition; genuine bargain, £23.—L. Fearn, Alfreton, Derbyshire.

3½ h.p. Quadrant, spring forks, vertical engine, slightly soiled, otherwise as new; price £21, lowest.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

FOUR-CYLINDER F.N., 4½ h.p., perfect condition, just been overhauled; £27; to be tried in London.—C.A.T., Dowgate Works, Tonbridge.

KERRY, 2¾ h.p., F.N. carburetter, three brakes, new tyres, splendid order and condition; bargain, 9 guineas.—Zambra, 308, Euston Road, N.W.

6 h.p. Twin-cylinder Jap-Ariel, low frame, 26 by 2½ wheels, has seen but very little use; £28; exchange arranged. —Wauchope's, 9, Shoe Lane, Fleet Street, London.

WANTED, £14 for 3 h.p. Triumph, Fafnir engine, Longuemare, accumulator ignition, just re-enamelled, first-class order.—T. Cooper, Hale Road, Farnham.

BARGAIN.—2¾ h.p. F.N., Chater-Lea No. 6 frame, 26in. wheels, Palmer cords, footboards, as new, accessories; accept £13 10s.—Brook, 5, Oakdale Road, Forest Gate.

6 h.p. Twin-cylinder Lurquin and Coudert, in Bat pattern frame, Brooks B100 saddle, low frame, long handle-bars; £17 10s., a sound motor and cheap.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MOTOR BICYCLES FOR SALE.

QUADRANT, 2 h.p., Clinchers, Rideasy saddle; £6 10s.—Below.

CLEMENT-GARRARD, 2½ h.p., spring forks, two speeds, free engine, lightweight, Palmer cord; £6 10s.—Below.

TRIUMPH-MINERVA, Palmer, spring saddle, splendid condition.—Below.

FAIRFAX Silencer and cut-out; 6s.—Moldgreen Engineering Works, Huddersfield.

3½ h.p. Excelsior, good order, recently overhauled; £10.—P., 12, Parker Street, Derby.

BROWN, 2¾ h.p., splendid condition, good hill-climber; £14.—A.R., 748, Old Kent Road, S.E.

2¾ h.p. Minerva, good condition; £14; take push bike and cash.—Belcher, Sandon, Chelmsford.

1907 Genuine Minerva, 2¾ h.p., complete with all accessories; offers.—54, Sackville Road, Bexhill.

3½ h.p. N.S.U. (1906), magneto, free engine, two spare belts, in perfect running order; £20.—8, Merton Hall Road, Wimbledon.

2¾ h.p. Minerva, low position, footrests and pedals, very powerful, faultless; £10 15s.—A. Soper, The Elms, Clapham Road, S.W.

REX, 3¾ h.p., 1906, excellent condition, new Clincher back, lamp, horn, stand, tools; £15.—Lisney, Broadbridge Heath, Horsham.

3½ h.p. Whitley, fast, and splendid hill-climber, very economical, faultless condition; £11 10s.—F. Robertson, 49, Jeffreys Road, Clapham, S.W.

2 h.p. De Dion-New Hudson, vertical engine, excellent condition, £9 9s.; lightweight motor cycle.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. Brown Motor Cycle, long handle-bars, low built, two accumulators, very fast and reliable; £16.—R. Ellis, Embro House, Westcott Street, Hull.

1907 Triumph, 3½ h.p., magneto, very little used, absolutely perfect, guaranteed, new condition throughout; £38.—D., 107, Uxbridge Road, Ealing.

TWIN Vindec, new 1907, perfect going order and condition, lamp, horn, spares; £36, or nearest offer.—Thomas, Naval Engineering College, Devonport.

2¾ h.p. Singer, magneto ignition, a splendid machine, non-skid on back, Dunlop front; giving up riding; price £10.—A. Bird, 8, Cardinal Street, Ipswich.

3½ h.p. Triumph Motor Cycle, in condition as new, 1907 model, magneto; £35; exchange arranged. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¼ h.p. Kerry, good condition, long bars, low position, Price's stands, new back tyre, two accumulators; giving up; a bargain, £10 10s.—19, Beulah Road, Walthamstow.

3½ h.p. Quadrant, spring forks, Brooks B100, Giant Watawata, Longuemare, twin accumulator, stand, horn, faultless; £20.—Rev. Rees, Courtland Place, Port Talbot.

3½ h.p. White and Poppe, Palmer cords, Brown-Barlow, trembler, two accumulators, Chater-Lea, thorough good order; write first. — Motor, 2, Spencer Park, S.W.

2 h.p. Clement-Garrard, very low, open frame, tyres perfect, spring forks, round belt, engine in good going order; £9, or offer.—R. G. Judd, Cocum, Barton Stacey, Hants.

1907 3½ h.p. Minerva, spring forks, adjustable pulley, many accessories, practically new, only run 600 miles; £25, or near offer.—Particulars, Barlow, Pocklington, Yorks.

EDINBURGH. — Alexander's Motor Exchange, 110, Lothian Road; the largest variety and stock of motor cycles in Scotland; agents for Quadrant, Griffon, Rex, N.S.U., Adler, Roc, Minerva, Vindec, and Bercley motors; repairs, spare parts; exchanges, easy payments.

WELCOME TWINS.

Occasionally we have had pointed out to us advertisements in which similarly described motor cycles appear cheaper than ours. It has occurred to us there are others who may think the same. ALL WE ASK is that clients will inspect such machines, and judge who gives REAL VALUE FOR MONEY.

Condition like new.

6 h.p. **TWIN PEUGEOT,** fine goer £19
5½ h.p. **REX DE LUXE,** Roc clutch, magneto £29
3½ h.p. **TRIUMPH,** 1907, magneto, classy £32
3½ h.p. **N.S.U.,** 1907, magneto, N.S.U. two speeds £29
3½ h.p. **REX,** 1907 spring forks, 2¼in. tyres .. £18
5½ h.p. **TWIN REX,** 1907, spring forks, footboards £22
4½ h.p. **TWIN MINERVA,** 1907, brand new .. £31

SPECIAL CASH BARGAINS.

£10 1¾ h.p. **CLEMENT-GARRARD,** two speeds, weighs under 60 lbs..... £10
£5 2¾ h.p. **SHAW,** vertical engine £5
£7 2¾ h.p. **HUMBER,** fine goer £7
£6 2 h.p. **QUADRANT,** grand machine £6
£7 2¾ h.p. **ORMONDE,** spray carburetter.. £7
£7 3½ h.p. **AUTOMOTOR,** spray, vertical engine £7
£4 10 2 h.p. **KING,** spray carburetter .. £4 10

REX MACHINES.

If you want one of these, write me. I have the pick of Halifax. All tuned up, and fit as fiddles.
TWINS ARE MY SPECIALITY.

WHAT OFFERS.

3 h.p. **N.S.U.,** has won Leeds Hill Climb £16
3 h.p. **ASTER,** very low built £12
4 h.p. **KELECOM,** 26×2¼in. tyres £16
3 h.p. **F.N.,** 26×2¼in. tyres £12
3 h.p. **CLARENDON,** vertical, Longuemare £10
3 h.p. **KING,** vertical, spray £10
3 h.p. **BRADBURY,** new Dunlops £11
3½ h.p. 1905 **REX,** 21in. frame £12
3½ h.p. 1904 **REX,** 22in. frame £9
3 h.p. **FAFNIR,** vertical, spray carburetter .. £10

SEND YOUR BEST OFFER.
Free belt fastener to all offers I decline.

HAVE YOU A MACHINE TO SELL? . . . WRITE ME.

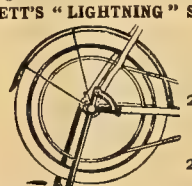
HAVE YOU A SIDECAR TO SELL? . . . WRITE ME.

DO YOU WANT A 1908 MACHINE OF ANY MAKE?

WRITE ME. I can put you on velvet.
IN FACT, DO NOTHING TILL YOU HAVE GOT MY PRICES.

	£	s.	d.
Pair X.L. All Spring Forks	0	10	0
Four-speed Gear for belt drive	1	10	0
B100 Saddle	0	12	6
Dunhill's Speedometers	0	6	6
3 h.p. Quadrant Engine	3	0	0
3½ h.p. 1907 Quadrant Engine, new	4	10	0
4½ h.p. New Orleans Engine	5	0	0
3 h.p. Automotor Engine	2	19	0
3 h.p. Antoine Engine	3	0	0
Tricar Frame, with wheels and tyres	6	10	0
Tricar Frame, no wheels or tyres, open type for wheel steering	4	10	0
Drummond Lathe, treadle, new nine weeks ago	12	10	0

200 LYCETT'S "LIGHTNING" STANDS.



FIRM. RIGID. STRONG.

For either 24in., 26in., or 28in. wheels.

Note the price ..... 4/9 per pair.

HIGH-CLASS MOTOR CYCLES WANTED FOR CASH. MONEY WAITING.

I have bought Seven Tons of Quadrant Engines and Parts. Send your requirements.

E. FARRAR, Albion Works, Square Road, **HALIFAX**

The winner of our last Motor Conundrum is Mr. H. Kennedy, Laurieston, Saltburn. His line read—

"When it's a carcase (car curse)."

Genuine Birmingham

"QUADRANTS."

A large stock of parts, still to be cleared. Write for latest List.

REG. SAMSON,
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MOTOR BICYCLES FOR SALE.

4 h.p. M.M.C. Enfield Motor Cycle, spring front forks, vertical engine, very powerful and fast; £15, good, reliable bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

1906 6 h.p. Twin Antoine, in excellent condition, Dunlop tyres, Stanley-Dermatine belt, accumulators, spares, etc.; what offers? — Hornsby, Stanley Villa, Apsley, Hemel Hempstead.

3 h.p. Fafnir, in Bat pattern frame, Chater-Lea fittings, engine recently overhauled; £12 10s., great bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

4½ h.p. Twin Minerva, splendid condition; cheap, or will take lower power and cash, any good make; also Liberty sidecar, £5. — Hardcastle, 15, Cologne Street, Harford Street, Stepney, E.

EADIE-MINERVA, 2 h.p., jointless rims, spring forks, spray, Simplex stand, electric light, etc., excellent condition; £10 10s., or exchange and cash for higher power. — Minerva, Glen Rosa, Coleshill Road, Teddington.

7-9 h.p. Twin Peugeot, 1907, Chater-Lea, Longuemare, Mabon free engine, footboards, brake, clutch, pedals, 26 by 2¼ Peter-Unions, non-skid back, ideal sidecar work; £27 10s., or best offer.—31, Craigerne Road, Blackheath.

TRIUMPH, 3½ h.p., 1907 (magneto), has carried 14 stone rider 3,300 miles, less than half a mile pedal assisted, good as new, and looks it, a fine example of a splendid make; £36.—Oliver, Milton House Works, Edinburgh.

TRIUMPH, 3 h.p., 1906, magneto, excellent condition, Palmer cords, Rich tubes, new saddle, various 1907 improvements, horn, pump, £7 extra in tyres and spares, thoroughly reliable machine; £25, well worth £35.—Capt. Home, 6, Strathearn Terrace, Perth.

3½ h.p. Peugeot Engine Motor Cycle, powerful hill-climber, back-pedalling brake, all accessories and spares, [illegible] new Clincher tyres; trial; no [illegible], £18 10s.; also 3½ h.p. Vindec, magneto, faultless condition, £25.—G.H., 59, Liverpool Road, Ainsdale.

MINERVA and Rex. — We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

TWIN, 6 h.p., specially built for speed, Sarolea, Chater-Lea No. 6, 18in. frame, footboards, spring forks, B105, torpedo and rear tanks, Peter-Union, 26 by 2½, handle-bar control, everything best possible, spare valves, etc., machine is brand new, less than 200 miles; price £35, no offers.—Chemist, 23, Broadway, Southall, Middlesex.

TWIN-CYLINDER Autobike, 5-7 h.p. Sarolea engine, 26in. wheels, Dunlop tyres, footboards, spring forks, long handle-bars, Brooks B100 saddle, two accumulators, large toolbag, double twist horn, gas lamp, two belts, the whole machine in new condition; must sell, room wanted; £25, or near offer; seen any time.—Sibley, 32, Fulham Palace Road, W.

1907 5 h.p. Twin Rex Motor Cycle, perfectly new, never been on the road, 31 guinea model, standard specification, but with 2¼ Continentals; price to clear 20 guineas, or by deferred payments, £7 deposit with order, and 12 monthly payments of £1 4s. 6d.; write for particulars of deferred payments for other makes. — William Whiteley, Ltd., Bayswater, W.

WINTER Bargains.—1½ h.p. Excelsior-Minerva, £4 17s. 6d.; 2 h.p. Minerva, £6 10s.; 2 h.p. Minerva, £6 10s.; 2¾ Excelsior, £8 10s.; 1¾ h.p. Excelsior-Minerva, £5 15s.; 3½ h.p. Aster engine motor cycle, £8 10s.; 3 h.p. Calvert, £5; 2 h.p. Raw, £4; 3½ h.p. London, £10 10s.; 2¼ h.p. Minerva, £8 10s.; 3 h.p. Ariel, £10 10s.; 2¼ h.p. 1905 Roc, £10 1[illegible]; 2¾ h.p. Minerva, £10 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MOTOR BICYCLES FOR SALE.

4½ h.p. Twin Minerva, spring forks, 2½ tyres, splendid machine; great bargain, £23; any trial.—128, High Road, Tottenham.

KERRY, 2¼ h.p., a special machine, fitted with Advance adjustable pulley, spring forks, footrests and comfortable saddle, tyres like new, engine perfectly tuned, as reliable as a push bike, an ideal machine for a non-athlete; 13 guineas.—Bunting, Wealdstone.

2¾ h.p. N.S.U., spring forks, magneto 34 ignition, high tension, heavy Clincher tyres, two brakes, Bowden lifter, perfect condition, new June, fast, climb anything, spare cover and new belt, lamp, stand, horn, tools, spares; sacrifice £16.—Motorist, 12, New Park Road, Chichester.

2½ h.p. Royal Enfield Motor Bicycle, run 480 miles, £12; 3½ h.p. twin-cylinder Werner, run 1,250 miles, £16; both low and comfortable, vertical engines, 26in. wheels, accumulator ignition, almost new condition; sell either; fifty mile trial.—Smith, 20, Walpole Road, New Cross, S.E.

FOR Sale, Motor Cycle, low, no pedals, De Dion engine (76 by 76), will do close on fifty, but easy starter. De Dion durability, reliability, and power, tyres almost new, everything in first-class order, Components frame, etc.; full particulars and photo; £25.—G. Morrice, St. Edmund's Rectory, Salisbury.

STAMFORD HILL.—Clearance sacrifices. Motor cycles: 3 h.p. Trent, £11; 3½ h.p. twin Werner, £17 10s., as advertised £41; 3½ h.p. M.M.C., £11 10s.; 4 h.p. Kelecom, £15; 2 h.p. Humber, £9 10s.; 2 h.p. Precision, £6 10s; 2 h.p. Raleigh, £4 10s.; inspection cordially invited; exchanges. —128, High Road, Tottenham.

3½ h.p. Rex, spring forks, 26 by 2¼ Clin-32 chers, rubber belt, perfect condition, £15; pocket voltmeter, in pouch, Peto-Radford, 0 to 6, new, 5s.; two trembler screws, B.M., unused, 1s. 6d.; trembler coil, walnut case, good condition, 10s.; 4-volt 25-amp. accumulator, perfect, 7s.—Jones, 4, Miles Buildings, London, N.W.

3½ h.p. Minerva, 1907, spring forks, foot-32 rests, carrier, extra petrol tank, patent stand, several spares, nearly new tyres, bold brass head lamp, just overhauled and re-plated and enamelled for owner to take to South Africa, but find cost too much, is reason of selling; must be sold this week; £25.—Rice, Motorist, Surbiton.

4 h.p. Twin, Longuemare, Lycetts belt, new A Wons, as new, two pair of handle-bars, two seat-pillars, large toolbag, 26in. wheels, exceptionally low position, latest Bowden belt rim brake, spares; any desirable or undesirable test with pleasure; stand and carrier, two accumulators; further particulars; £25, no offers.—A. E. Willetts, Bream, Lydney, Glos.

TRICARS FOR SALE,

HALIFAX.—4½ h.p. water-cooled Wolf, two speeds, handle starting; £37 10s.—Below.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built.—Below.

HALIFAX.—5½ h.p. Rexette, two speeds, spring frame, car tyres, in perfect order; £37 10s., bargain.

HALIFAX.—6 h.p. twin-cylinder Advance tricar, wheel steering, only used for trials; bucket seat; £35.

HALIFAX.—5½ h.p. Rex Triette, spring frame, Palmers, non-skid to rear; £27 10s.—Below.

HALIFAX.—5½ h.p. open frame tricar, luxuriously sprung, two-speed, water-cooled, car tyres; £29 10s.

HALIFAX.—6 h.p. twin Antoine tricar, a real gem, open frame, three speeds, wheel steering, chain drive, foot clutch; £37 10s.

HALIFAX.—8 h.p. twin-cylinder Rexette, carry three (1906), fine condition, excellent climber, non-skid to rear; £39 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

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There are many motor cycles to select from, but do you know if the one you have in your mind will fit you? This little point makes all the difference between comfort and discomfort. We have had experience with every leading make, can supply any of them, and can therefore give you unbiassed advice. We can offer you favourable terms for

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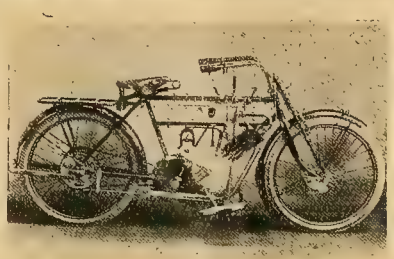

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PHELON & MOORE. (Two-speed.)	**ROC.** (Two-speed.)	**REX.** (Two-speed.)
TRIUMPH.	**F.N.**	**DURKOPP.**
G.B. (Two-speed.)	**VINDEC.**	**N.S.U.**
MOTOREVE.	**MOTOSACOCHE.**	**ARIEL.**
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The **RILEY**, built in 5-6 and 9 h.p. PRICES from **85 Guineas.**

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We have an excellent stock of good Second-hand Motor Cycles and Tricars. If unable to call and view, write for full particulars.

SELECTIONS.

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3 h.p., Fafnir engine	**£7 0**
3½ h.p. **REX**, Longuemare carburetter	**13 0**
2¼ h.p. **ARIEL No. 1**, good machine	**15 15**

MANY OTHERS IN STOCK.

Trioars.

9 h.p. **RILEY**, three speeds and reverse	**£55**
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8 h.p. **REXETTE**, seat three, two speeds	**35**

Also a few Cars, Shop-soiled and Second-hand.

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Most of the above can be supplied on our unique system of Extended Payments.

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Send your machine to us for conversion to two speeds. We can fit the Roc, Fitall, Osborne Biggs, or Nala; or a free engine clutch with starting handle can be supplied for **55/-**

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Our Clothing Department specialises in all motorists' requirements. Our Heavyweight Mackintosh Coat and Leggings, best rubber proof, is the best value obtainable.

Price 21/- complete. Approval.

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TRICARS FOR SALE.

3½ h.p. Tricar, in good condition, wicker 2 forecarriage; bargain, £16.—Fern Villa, Knossington, Oakham.

FARRAR.—5½ h.p. Rexette, chain drive, open frame, wheel steering, two speeds; £29.—Below.

FARRAR.—3½ h.p. Minerva tricar, vertical engine, M.O.V., fan-cooled, Longuemare carburetter; £18 10s.—Farrar, Square Road, Halifax.

3¼ h.p. Light Tricar, Royal Sovereign, Palmers, Longuemare, first-class condition; £13; any trial.—Below.

LIGHT M.M.C. 3 h.p. Tricar, long stays, non-skid back, Longuemare, complete, good running order; trial; £9 17s. 6d., a Christmas box.—128, High Road, Tottenham.

5½ h.p. Rexette, latest pattern, as new, 2 guaranteed; bargain, £35; photo. —16, Summerlands Mansions, Muswell Hill.

5-6 h.p. Twin-cylinder Tricar, in perfect condition, fast, and reliable; £25, or exchange in part payment. — Jones, Lichfield.

PHŒNIX Tricar, Minerva, 3½-4½ h.p., two speeds, coach-built, footboards; £24, offers.—41, Skelbrook Street, Wandsworth.

8-10 h.p. Tricar, twin-cylinders, water-cooled, coach front, three speeds; bargain, £40. — 1, Shaftesbury Avenue Street Lane, Leeds.

TRICAR, 3½ h.p., Simms magneto, upholstered red leather, perfect condition, and running order; bargain, £19.—Saner, Buttsbury, Ingatestone.

QUADRANT, 6 h.p., two engines, coach-built, nice finish, in good condition; £25; exchange for water-cooled or twin and sidecar.—27, Cecil Avenue, Barking.

5 h.p. Lagonda Tricar, thoroughly overhauled, fan-cooled, 650 by 65 tyres, Whittle belt, lamps, spares, etc.; nearest cash offer, £23; trial given.—P. Gardam, Riverside, Staines.

1907 Riley Tricar, 5 h.p., w.c., two speed gear, powerful hill-climber, very fast on level, faultless condition; 33 guineas.—P. Granville, Park Lodge, Peckham Rye, S.E.

10 h.p. Singer Tricar, twin-cylinder, three speeds and reverse, 3½in. Palmer cord tyres, £30 of spares; sacrifice £65.—W. Hutchison, Apsley Villa, Clapham Road, S.W.

5½ h.p. Rexette, two speeds, wheel steering, good tyres, new Clincher on back, lamps, and spares, in good order and condition; trial; £27.—W. Newton-Clare, The Ferns, Beckenham.

MAUDE.—8 h.p. Rexette, two speeds, open frame, sprung back, twin-cylinder, wheel steering (the £1,000 car on three wheels); only £35; exchanges. — Maude's, Lilly Lane, Halifax.

LAGONDA Tricar, 10-12 h.p., two-cylinder, air-cooled, three speeds, both seats coach-built, climb any hill, excellent condition, all spares; price £55.—M.C.G., Eaton Rectory, Church Stretton, Salop.

5 h.p. Twin-cylinder Light Tricar, Anglian two-speed gear and clutch, magneto, tyres almost new, 2¼ Palmer cord on back, extra mudguards, pump, tools, horn; £35; owner abroad.—Clark, George Street, Ryde, Isle of Wight.

STAMFORD Hill.—Clearance bargains. Tricars: 5 h.p. w.c. Excelsior, Oppermann three speeds, £29; 3½ h.p. Fafnir engined, Osborne four speeds, £29; 4 h.p. Phœnix Trimo, Fit-all gear, £27; we exchange; full value allowed for old machine.—128, High Road, Tottenham.

SIDECARS AND FORECARS.

SIDECAR, rigid, fancy cane, quick detachable joints, specially suitable F.N., four-cylinder, perfect, new 2¼ Palmer; £5, or part exchange good brazing lamp.—4, Havelock Road, Croydon.

HALIFAX.—Three sidecars, 26in. wheels, £4 15s. each; sidecar, less axle, £2; forecar, with long side stays, fit twin Rex, £5; forecar seat, with springs, 20s.; all good condition.—16, Westgate, Halifax.

SIDECARS AND FORECARS.

MONTGOMERY Lightweight Attachment, compensating, as new; bargain, £3 15s.—32, Chorley Road, Wigan.

MONTGOMERY Sidecar, practically new, 26in. wheel, Continental, cane body; £7 10s.—Brown, Belle Vue, Thetford.

MONTGOMERY Flexible Sidecar, 26in. by 2¼in. Continental, new June last; £5 5s.—Morris, Carolgate Bridge, Retford.

STAMFORD HILL.—Order early. Try one of our famous rigid sidecars, 24in., 26in., and 28in. wheels, right and left-hand side, brand new, £4 18s. 6d., to fit any frame; open frame light tricar chassis, 26 by 2¼in. tyres, £6 17s. 6d.; splendid trailer, Dunlops, £2 15s. — 128, High Road, Tottenham.

SIDECARS.—100 miles a day for one year on an Oakleigh motor and sidecar; this severe test finished Christmas Day; 36,500 miles and no twisted frame, no sideslip, no undue wear on tyre, and no trouble whatever, come and see it. Notice how others try to imitate us. We lead, others long way behind. Actual inventors of the sidecar. We supply the brains.—Oakleigh Motors, Ltd. West Dulwich.

MOTOR TRICYCLES.

ALVASTON Works.—Genuine bargain. 3 h.p. Ariel motor tricycle, in perfect running order, 2¼in. Dunlop tyres, sound, reliable machine; £3 10s.

ALVASTON Works.—Very fine canopy, as new, plate-glass front and back, storm curtains, complete with supports, suit any modern car; 70s., cost £25; sold car.—Alvaston Motor Works, Derby.

4 h.p. Water-cooled M.M.C. Tricycle, free engine, clutch, starting handle, splendid condition; £12 10s.—Chestnuts, Sunmead Road, Sunbury, Middlesex.

2¾ h.p. Water-cooled M.M.C. Tricycle, running order, less tyres, £6; exchange 3½ h.p. water-cooled engine, quad axle, and free engine clutch, 30s.—Westfield, Pitsea, Essex.

CARS FOR SALE.

8 h.p. M.M.C. Tonneau Car, perfect condition; £42; tricar or bike part.—129, Chapel Road, Worthing.

HALIFAX.—13-16 h.p. Reno, the new car, simplicity itself to drive, yet powerful; come and see; cash or exchange.—Below.

HALIFAX.—8-10 h.p. four-cylinder Humber, side entrance, 760 by 90 tyres; cost £270, accept £160 for quick sale; trial by appointment.

HALIFAX.—8 h.p. Argyll, two-seater, three speeds and reverse, honeycomb radiators; £57 10s.; tricar or motor cycle part payment.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

MABLEY Car, three-seater, perfect order; cash wanted, £17.—35, Wheelock Street, Middlewich.

FARRAR.—16-20 h.p. M.M.C., four cylinders, tonneau, good roomy car; £80, or lower power and cash.—Below.

FARRAR.—6½ h.p. Aster engined car, two-seater, square bonnet, equal artillery wheels, smart little car; £55.—Farrar, Square Road, Halifax.

6 h.p. De Dion Engine Car, two bucket seats, three speeds and reverse; £65, or exchange in part payment.—Jones, Lichfield.

PHŒNIX Forecar, wicker seat, band brakes, like new; £7, or offers.—Mullett, Kingsley Avenue, West Ealing, London.

MILLS-FULFORD 20 Guinea Forecarriage Attachment, complete, only run 300 miles; cheap.—38, Garden Street, Nelson, Lancashire.

4½ h.p. Renault Car, three speeds and reverse, two-seater, and extra tonneau, in perfect condition; £40, or would exchange for lightweight F.N., or 1907 Triumph, or Phœnix Trimo, cash adjustments.—G.S., 10, Mansfield Road, Gospel Oak, N.W.

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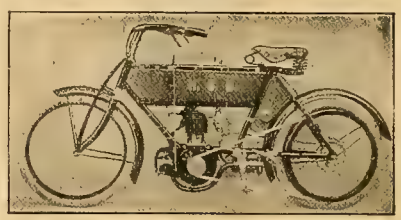
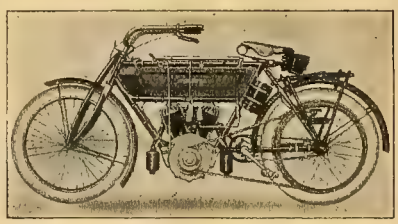
TRICARS, or LIGHT CARS are accepted by us in part payment for any of the leading makes in Motor Cycles, as Triumphs, Vindec Specials, Quadrants, Motosacoches, F.N.s, Minervas, Browns, Bats, Rocs, Ariels, etc. We are contractors for most of the leading makes, and motorists can be assured of the very best quotations for second-hand machines in part exchange. We are still requiring large quantities of second-hand machines, and any make of machine will be quoted for in exchange, and all orders will be put through with as little delay as possible.

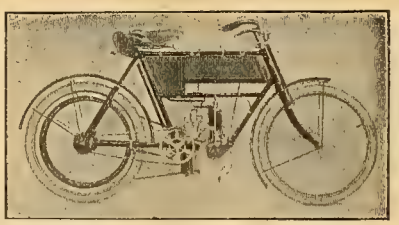


1908 N.S.U. Motor Cycles. You can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London.



1908 Minerva. You can get them at Wauchope's; immediate delivery. Let us quote for your second-hand machine.

Just walk up or write up to Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C., who will quote you the fullest market value of your present Motor Cycle, etc., and will let you have full market value on receipt of particulars. An exchange offer will be made unseen subject to machine tallying at sight.



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6 h.p. Smart Two-seater, almost new condition, artillery, Dunlops, lamps; trial; bargain, £38. — 1, Shaftesbury Avenue, Roundhay, Leeds.

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BARGAIN, £35.—Small light two-seater, perfect, lamps, numbers, horn, spares, better than sidecar or tricar.—Norris, 37, Foxley Road, Brixton.

6 h.p. Rover, artillery wheels, wind and dust screens, Stepney spare wheel, spares, complete; nearest to £90.—Write first, Motor, 2, Spencer Park, S.W.

£19.—Oldsmobile, 5 h.p., bucket seats, slight repairs wanted.—Write, Williamson, 27, Holligrave Road, Bromley, Kent. Seen at The Mart, High Street.

9 h.p. M.M.C., detachable tonneau, Cape hood, upholstered leather, adapted to burn paraffin, two speeds and reverse; £40.—Beddall, Sutton, Stalham, Norwich.

6½ h.p. Aster, two bucket seats, three speeds, artillery wheels, good tyres, wheel steering, splendid running order; £40; seen by appointment.—Mitchell, 457, Lord Street, Southport.

6½ h.p. Siddeley, two-seater, three-speed forward, reverse, artillery wheels, excellent condition, been carefully used, fast, reliable; any trial; £65.—Peacock, 4, Louisville Road, Balham.

GENTLEMAN wishes to sell his 6-8 h.p. two-cylinder Panhard car, five-seater, Cape hood, gas and oil lamps, tyres good as new, everything up-to-date, guaranteed perfect running order; any trial; price £100; would take good make of motor bicycle in part exchange.—Apply, Albert, 179, Wymering Mansions, Maida Vale, London.

5½ h.p. Auto Motor Light Five-seater (only 5 cwt.), two speeds, vertical engine under bonnet, inclined wheel steering, extra low, long wheelbase, equal Dunlops, nearly new, prettiest two-seater on road, magnificent condition throughout; 50 miles trial; sacrifice £33; good motor cycle taken part payment.—R. Else, Leawood, near Matlock.

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W. W. GENN personally overhauls, repairs, or tunes up your motor cycle or car, and builds to specification; charges moderate.—Motor Works, Gap Road, Wimbledon.

TYRES.

INNER Tubes.—Quantity second-hand, in perfect condition, 26 by 2in., 5s.; 26 by 2¼in., 6s.; 26 by 2½in., 7s.; butt-ended 3s. extra; cash with order.—Phœnix Motors, Ltd., Blundell Street, Caledonian Road, N.

STAMFORD HILL. — Sound line first-class tyres by good makers, 26 and 28in. by 2, 2¼, 2½, beaded and wired, at 13s. 9d.; 26 by 2½ butted tubes, 9s. 9d.; 28 by 2½ studded band, wired cover, 22s.; three 26 by 2½in. Fisk tyres on rims, 30s. each.—128, High Road, Tottenham.

MISCELLANEOUS.

BOOTH.—Mudguards, with stays and screws, enamelled, 3in. 2s. 11d., 4in. 3s. 6d. pair.

BOOTH.—Silent silencers, suit engines to 5 h.p., no back pressure, very efficient; 3s. 3d.

BOOTH.—Fifty pairs Xl'all spring forks, latest 1908 pattern, fit any machine,

BOOTH.—Massive horns, deep tone, 3s. 9d.; double twist horns, terrible noise, 4s. 9d.

BOOTH.—Voltmeters, watch pattern, usually 9s. 6d., 4s. 1d.; mica plugs, 1s. 1d.; De Dion pattern plugs, 1s. 1d.

BOOTH.—High tension wire, rubber insulation, 1s. 1d. yard; low tension, 5d. yard.

BOOTH.—Motor handle-bars, 20in. long, 5s. 6d.; Price's patent stands, 5s. 11d., new.

BOOTH.—All sizes of genuine Stanley-Dermatine belting and fasteners; send for prices.

BOOTH. — Sidecar, shop-soiled only, rigid, beautifully upholstered; cost £12 12s., to clear £5 10s.

BOOTH.—New motor cycle frame, complete with wheels, belt rim fitted, wide mudguards, two cable brakes, valve lifter, long bars, low built, beautifully enamelled, suit twin engine; £6 5s.

BOOTH.—Engines, 6 h.p. twin Rex, £6 17s. 6d.; new 3 h.p. Automoto, £2 17s. 6d.

BOOTH.—Engines: New 6 h.p. twin Antoine, complete, with contact breaker, valve lifter, and pulley; £7 19s. 6d.

BOOTH.—New 5 h.p. water-cooled tricar engine, best make, M.O.V., 1907 model, as received from makers; £7 19s. 6d.

BOOTH.—Coronet spring seat-pillars, entirely eliminate vibration, fit to any machine in three minutes.

BOOTH. — Coronet spring seat-pillars make your high built machine so that both feet can be placed on the ground while in the saddle.

BOOTH.—The price of Coronet spring seat-pillars is low; send for descriptive literature; special terms to agents.

BOOTH.—Bad roads appear good to the rider of a Coronet seat-pillar.

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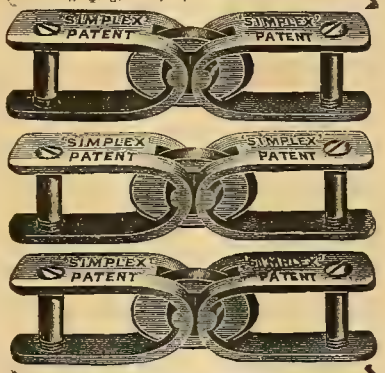

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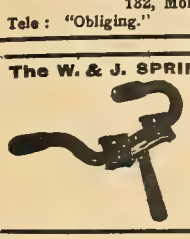

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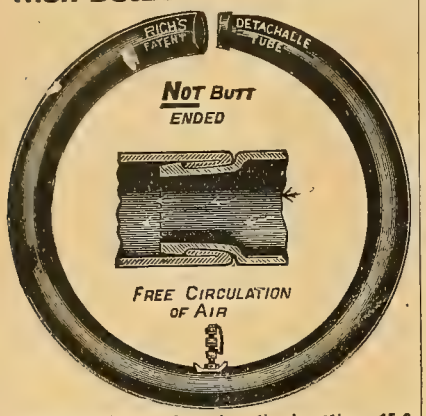

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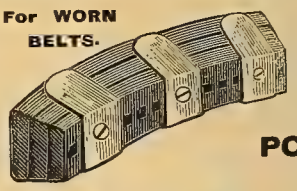

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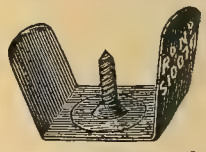

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THE MOTOR CYCLE

Vol. 6. No. 251. CONTENTS. Jan. 15, 1908.

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Does an Air-cooled Engine Overheat?

A REPLY BY ERIC W. WALFORD.

I AM glad to note that my article in your issue of 23rd October has aroused some interest, judging from the correspondence columns, and partly from the letters I have received privately on the subject.

Mr. Verney evidently tries to be facetious in his remarks in your issue of November 6th. I am unable to explain why Mr. S. F. Edge ran cold water through his water jackets. To my mind it is very remiss of him, but as he was probably nowhere near at the time the tests were carried out, this may account for it. He undoubtedly would have got more power if the water in the jacket had been hot. As to the expansion of the incoming charge, of which Mr. Verney imagines I am ignorant, I refer to this in my article, but ignore it, as it is evidently the same in a water-cooled engine. Does Mr. Verney think the gas does not expand in a water-cooled engine, and does in an air-cooled? I agree that some machines do fail to climb a hill when they are hot, but it is not, in my opinion, because they are hot, but for the reasons stated in my article. Many motor cyclists have the same experience as myself, that is to say, they find they can climb hills without the slightest suspicion of what is known as overheating, whilst other people, under the same circumstances, fail. It was, therefore, because experiences were so contradictory that I went into the theory, which appears to have upset Mr. Verney, as he prefers to talk of "practical power" rather than "theoretical efficiency." You can hear half a dozen riders who will say one thing, and half a dozen the other. So much for practical experiences.

With regard to Mr. Verney's experience on one occasion of over-lubrication, I have known this occur on certain machines. Again, on other machines one can give a sufficient amount of oil without trouble from this cause. His machine is evidently at fault in this respect.

With regard to the specially thick oil for air-cooled engines, I suggest that the thick oil referred to is not by any means necessary. In one case I know a rider who is using water-cooled oil, and has done so for some time with perfect success. Personally, I have tried oils in an air-cooled engine from quite a thin water-cooled to an oil called Serpollene used in the Serpollet steam cars. This is probably the thickest oil made, and is almost of the consistency of vaseline. Personally, I am all for a very thin oil and plenty of it, and think that the thick oil is quite unnecessary, and would not use it myself.

The Temperature of Cooling Water.

In water-cooled engines the water does not enter the water jacket from the radiator "nearly cold" and leave it boiling. I defy Mr. Verney to find any single make of car in which the ingoing water is what he calls "cold" when the engine is under load. I agree that with certain honeycomb radiators, and an engine just turning round with the car stationary, the water may be going into the engine fairly cold, but it is well known that some honeycomb radiators keep the engine too cold for maximum power, and in many cases in recent trials part or the whole of the radiator has been covered up on purpose to keep the radiator hot, and so prevent the water in the cylinder jacket falling to too low a temperature.

With regard to the stationary gas engine mentioned by Mr. Verney and the trouble referred to, this I think

Does an Air-cooled Engine Overheat?

cannot be compared to a motor cycle engine, but as I have a small gas engine of my own which suffers from exactly the same trouble, I think I can explain the cause of it. Mr. Verney rather gives away his case when he states that the cylinder head is not water jacketed. This is the case with my gas engine. It is perfectly obvious that the unjacketed part—which, by the way, is exposed to the greatest temperature—expands, causing the cylinder to draw out of the parallel and compression to fall off. In my engine, which is the same type as that referred to by Mr. Verney, the compression is excellent when the engine is cold, but directly the engine warms up the compression goes.

Failed when Hot, Succeeded when Cold.

In reply to "Interested," the machine with the high powered engine must slow down when it comes to a hill on account of the extra work which it has to do. He refers to two instances in which the machine failed when hot and succeeded when cold. Were these tests made consecutively or on different days? If the machine was ridden up the hill hot and failed, and was then ridden down with the exhaust valve lifted, allowed to cool, and then ridden up the hill, the explanation is fairly simple. It is well-known that on descending a hill with the exhaust valve lifted there is no pressure on the top of the piston to blow the oil down past the rings. The oil consequently thoroughly lubricates these and the cylinder walls, so that when the machine is put at the hill the second time it climbs successfully, for this reason, and not because it has cooled down.

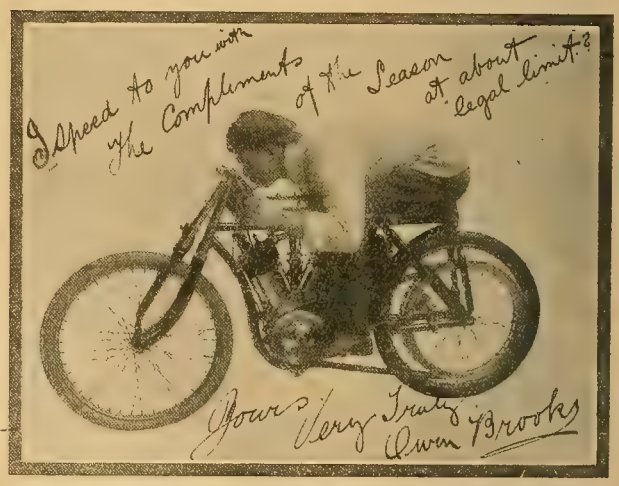
As to proof, the same remarks might have been applied to the motor tricyclist of some years ago, whose machine gradually ran slower and slower and finally came to a standstill, and after a rest for cooling down would run all right. In those days motor cyclists were convinced that this was overheating. It was a few years afterwards that it was proved to be due to the dry batteries used in those days. So much for the "proof" of those days.

Your correspondest says he used to have overheating on Bury Hill, which now he can climb with a hot engine. What has he done to prevent overheating now that used to occur? Overheating could not have had anything to do with it. With regard to his final remarks, he overlooks the speeds done in the Tourist Trophy Race, and the results which have been put up in the hill-climbs of the last season, especially when nearly every rider warms up his engine before he starts. If your correspondent were right, surely these trade riders would not warm up their machines, as many of them do.

Graphite Lubrication.

Mr. Scrivens's trouble seems a difficult one to diagnose, especially as one cannot examine the machine, though his remarks prove conclusively to my mind that the trouble cannot be due to overheating. He states that for two months the machine without a fan would take a twelve-stone passenger in a sidecar up steep hills one and a half miles long at high speed without any sign of overheating. How on earth such a machine could suddenly take it into its head to overheat I cannot make out. True, Mr. Scrivens says he has been using graphite in the engine, which may account for his troubles. Some time ago I experimented with this, and a report of my experiences appeared in *The Autocar* of August 15th, 1903. I found the stuff worse than useless, as it seemed to work its way into the pores of the piston and cylinder and then sweat out, giving endless trouble. At the same time it caused pre-ignition.

In conclusion, I should like to refer to some typical experiences which have come to my knowledge since my article appeared. One is that of the maker of the Fit-all two-speed gear. He has one of these gears fitted to a 3 h.p. Raleigh-Fafnir 75 × 80 mm. This machine will take Birdlip with, I think, a gear of 10 to 1 on the low gear. Here is a case of the engine running fast and passing through the air at a low speed, and yet being able to climb a very stiff hill. Mr. Powell, the owner, tells me that he has never known a case of overheating. To those who relate their experiences, as proof that their machines do overheat I mention this instance. In another case the owner of a twin-cylinder machine, who certainly does



A New Year card received from Mr. Owen Brooks, of Leeds, who is depicted on his mile-a-minute motor cycle.

not "nurse" his engine, tells me that he has never had a case of overheating, because, in his opinion, he gears lower than the average user of the same machine and swamps the engine with oil. He has altered his carburetter so that he can supply enough air at all speeds, and thus the engine can run about 200 revolutions faster than it did when new. The maximum speed of the engine, therefore, is not reduced by the low gear, and it will climb any hill, developing its power to the very last, although it is at what he calls "pink heat" all the time. Before an important event, such as a hill-climb, he works his engine up to a "pink heat," and generally puts up a good performance.

Never Known a Case of Overheating.

Another case is that of the owner of an air-cooled tricar of the motor bicycle and wickerwork seat type. He has had this some years, and says he has never known a single case of overheating, although it has no fan or scoops. I quote the three cases as they are widely different.

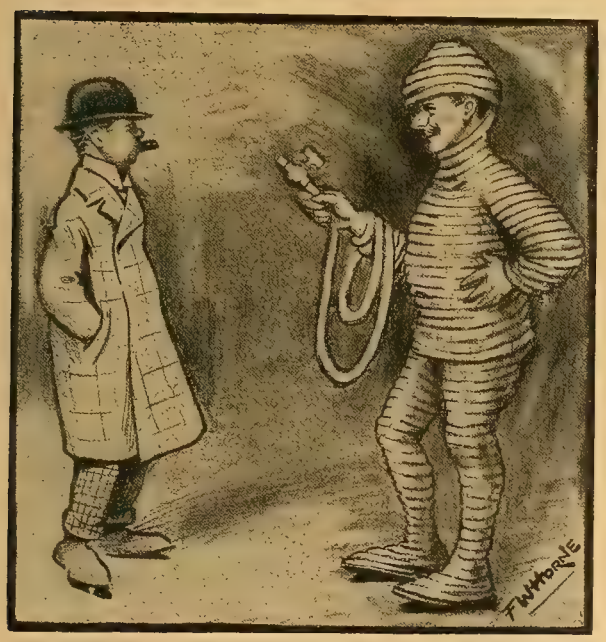
I feel more convinced now than ever that an engine on a motor bicycle never becomes too hot to work properly, if it is fairly well designed and fairly well

Does an Air-cooled Engine Overheat?—

looked after, not over geared, and properly lubricated. That is to say, any rise of temperature normally occurring ought to have no noticeable detrimental effects.

Mr. Nevill appears to me to have given his article a wrong title. I do not see that it has any particular reference to overheating. He quotes the remarks of Mr. Roots in his book, referring to an archaic two-stroke engine. The experiments were carried out many years ago, as I remember reading a description of them quite six years ago. They are by no means conclusive, as the figures quoted go to show. By reducing the temperature of the air to 36° Fahrenheit an increase in the engine speed of only *thirteen revolutions* is obtained per minute. Mr. Roots does not say whether

HOW TO KEEP WARM.



The Chappy: "Great Scott, Speeder, going to a fancy dress ball as the Tyre Man."

Speeder: "Oh, no; this is my new motor cycling rig-out—flexible aluminium tubing—I just connect this end to the exhaust box, and regulate the heat by the tap!"

any increase of power was obtained, probably for the very reason that none was obtained. With regard to the converse experiment, the conditions are not by any means the same or similar to those arising on a motor cycle engine. In the experiments the air was actually heated to a temperature of 370° F. before the engine stopped. On a motor cycle engine air is taken in cold and has to be raised to something like this temperature in a minute fraction of a second, and to stop the engine under such circumstances is an impossibility. I am not inferring that a heated charge is better than a cold one, because it is not. The ideal is as low a temperature as possible as long as freezing does not occur.

I should very much like to see the experiment referred to of an air-cooled engine running with a fan brake, and its power falling off more and more. If I had access to a fan brake and an air-cooled engine I should certainly carry out the experiment. Has Mr. Nevill seen this experiment carried out? If so, where?

Retention of Exhaust Gases.

With regard to Mr. Nevill's causes of overheating, the first thing he states is leaky piston rings. Why on earth it is called overheating I cannot understand. How does the engine get any hotter? How does that increased heat—if there is any—adversely affect the engine?

His second explanation is retention of exhaust gases at high speeds. This certainly happens with a badly designed engine, with incorrect timing of exhaust valve, and insufficient valve lift. Does not the same occur in a water-cooled engine? If so, I consider it should have no bearing on the question of "overheating," and should be called "retention of exhaust gases."

If the Jap engine can obtain a piston speed of over 2,000 feet per minute I do not think the question of retention of exhaust gases should present much difficulty to designers. Mr. Nevill should examine some indicator diagrams of a high speed engine, and he will see that the effect of excessive pressure at the commencement of the induction stroke, due to gas retention, is not noticeable.

I do not think his remarks throw any light on the question of overheating, as they do not state what overheating actually is, nor what effect it has on the engine.

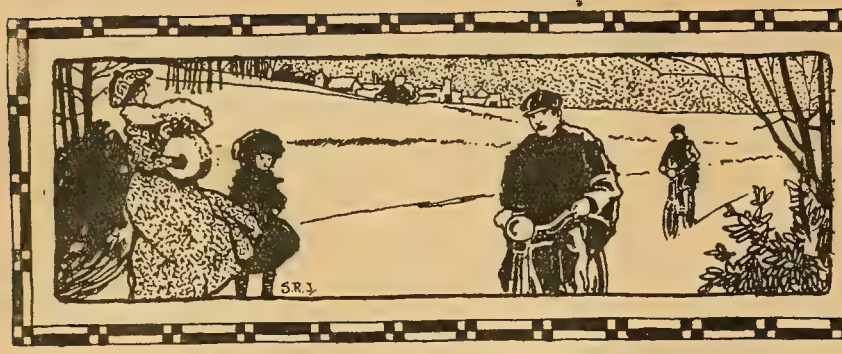
I certainly would not advise anybody to fit an automatic air inlet between the throttle and the engine as suggested. It would undoubtedly give a great amount of trouble, which the average rider would have great difficulty in understanding. Each time the throttle was shut the slightest bit, the automatic air valve would open more, completely upsetting the mixture, and worrying the poor rider off his head.

In conclusion, I should like an answer to the following questions from anybody who contends that overheating is a fact and not fiction:

1. What actually occurs inside the engine when the engine "overheats?"
2. What the effect is on the engine to cause it to stop?
3. Why engines can be made that do not "overheat," such as those fitted to the Tourist Trophy and other racing machines.

We have to acknowledge receipt of a neat little pocket-book from the Continental Tyre and Rubber Co., Ltd., 102-108, Clerkenwell Road, E.C. The book is bound in leather, and a refill and pencil are provided. Contrary to some gifts of a similar nature, the company's advertisement is not made too prominent.

Compression is vital to the perfect running and power of a motor cycle engine, and much time can be saved with the use of a proper compression gauge. Markt and Co., 6, City Road, Finsbury Square, E.C., are importing the Brown Compressometer, which is threaded to screw into the sparking plug hole. The dial is provided with a maximum hand, which indicates the exact pressure in the cylinder when the engine is turned over the compression, by remaining at the figure indicating that pressure. The engine should never be run while the gauge is in the cylinder head.



To Switzerland and Savoy by Motor Cycle.

By H. FOWARTH.

(Continued from page 22).

The Jura Mountains in Sight.

Next day (Thursday) found us early on the road, and we soon reached Poligny, at which place, to our great satisfaction, we espied the distant Jura Mountains. The Vindec rapidly took us nearer, and the misty shapes grew more distinct, until at last (at St. Laurent, I think) we appeared to be riding straight towards a mountain whose sides rose sheer from the plain to a prodigious height, and over which it seemed impossible for a road to be constructed. But we were yet to learn the possibilities of French road-making. Soon afterwards we were negotiating the hill (the Savines Pass). The ascent was long and very tortuous. Twice it was necessary to change to low gear in order

Hotel du Montanvert, Chamonix.

to pick up speed after taking particularly bad corners. The views obtained during the climb were very fine, but when the summit was reached the outlook over the valley on the other side was far superior. We had passed the level fertility and straight roads of central France, and were looking on a land so utterly different that it seemed incredible that so short a distance separated us. Far across the valley, quite clear in the mid-day sunshine, were the rugged peaks of other mountains, rocky and streaked with snow, which showed up in sharp relief against an intense blue sky.

After a short stop to admire the scenery, we descended into Morez, and knowing that the Col-de-la-Fauçille had to be climbed on the way to Gex, we kept a look-out for this pass, of which we had heard much. After some miles of "twisty" road, full of unexpected sharp turns, we became aware that we were climbing; for occasional views from the corners of the road showed that we were at a considerable altitude. Soon afterwards we passed the Hotel de la Fauçille, and found ourselves at the summit of the pass before we had quite realised that we were climbing it.

Passing the Swiss Frontier.

The descent was easy and through pretty country, the road winding about in a manner reminiscent of Devonshire. Passing through Gex, we found the road badly paved, and from this town to Geneva we had to ride carefully to avoid the tramlines, which were very badly laid. Somewhere on this road we passed the Swiss frontier, but we were not stopped by the customs officials. We did observe a man in uniform, who gesticulated wildly as we passed, but we did not at the time connect this amusing figure with the "Douanes Suisse."

We arrived in Geneva in good time for dinner. So far we had done absolutely nothing to our machine beyond feed it with petrol and oil, and apart from the puncture at Fontainebleau the ride had been without an involuntary stop. The experience was new to us while motor touring, and, as a diversion, we would almost have welcomed a misfire or a "short"; but these delights of our former holidays seemed unknown to the magneto, and we had to get along with both cylinders determinedly firing properly and make the best of it.

Geneva is a fascinating city, and very cosmopolitan. In the evening we hired a skiff for a lazy row upon the lake—a most enjoyable experience. It was a clear night, the moon being almost at the full. On the one hand the city lights cast bright reflections in the lake, and the music of a café orchestra, reaching us faintly, gave an impression of gaiety and life, which contrasted strangely with the cold serenity of the view in the opposite direction, where the snowy peaks of the Dent de Morcles and the Dent du Midi rose pale and distinct against the starry sky.

To Switzerland and Savoy by Motor Cycle.—

Next day we set out early for Anneçy and Albertville, intending to work round in a semi-circle to Chamonix. It is quite impossible for me to do justice to the magnificent scenery we encountered on this day's ride. Passing through St. Julien, we tackled the ascent of Mont Salêve. This is no mean climb, and for a short distance during the ascent the low gear had to be resorted to. Descending the other side, we were more or less pleased to feel the back tyre suddenly flatten, and to discover therein another nail, with its accompanying puncture. This time we finished in two cigarettes!

Adventures on the Way to Chamonix.

But our day's adventures were only just beginning, for in attempting to avoid a hen, in a village near Anneçy, I ran over a large square stone, which bumped the rear tyre against the rim with such violence as to puncture it in two places. This, naturally, was quite sufficient to satisfy us for the day, and when we got once more under way, and encountered another encampment of poultry on the road, I drove more discreetly, and one misguided pullet which tried to cross the road in front of us met with an untimely end. We dismounted in order to reimburse the owner, who emerged from a tumble-down wooden dwelling close at hand. He was a very old man, but as he grasped the situation and the hen, he commenced to abuse us in the most amazing flow of language I have ever heard. Of course, we did not understand him, but we managed to stem the verbal tide by jingling a few coins under the old man's nose—a couple of francs sufficing to put him in the best of spirits—and after declining the defunct hen, which the old man pressed upon us, we went our way.

The Lake of Annecy.

Passing through Anneçy, our road lay alongside the lovely lake of that name. Here we would fain have stayed awhile, for the variety and wonderful colouring of the ever-changing panorama of lake and mountain scenery made this little run the prettiest section of the tour. To us, accustomed only to English scenery, this predominance of delicate but brilliant colour was a pleasing feature. Riding slowly along the lake side, we reluctantly bade farewell to its azure waters and its pretty white-sailed boats, and making our way to Faverges, with its ancient abbey, we arrived at Ugines in time for lunch.

The Low Gear again Proves its Worth.

In the afternoon the Col-de-Mégève had to be surmounted. The route was very picturesque, and this climb was the first to need the low gear for any considerable length of time, for, although the gradient was not especially severe, the corners were very bad to take, and, to make matters worse, long stretches of road were under repair. Descending the Mégève, the road improved slightly, and remained fairly good to Sallanches, at which place we left the main road and made towards Mont Blanc and Chamonix. On this road we encountered still more bad surface, but the magnificent views of Mont Blanc which we obtained on the way were ample recompense.

Chamonix was visited under ideal weather conditions, and the awe-inspiring grandeur of the Glacier-de-Bossons, Montanvert, etc., could not have been seen to better advantage.

A Stretch of Bad Road.

Our destination after leaving Chamonix was Thonon-les-Bains, and we were greatly disappointed to learn that the only practicable road was through Sallanches, over the dreadful road by which we had come. It had to be done, however, so at two o'clock in the afternoon we set out from Chamonix, thinking to ride the ninety or hundred kilometres in about three hours. Our reckoning proved to be very wide of the mark, for the rough road made fast travelling impossible, and occasionally, out of consideration for the tyres, we walked bad stretches.

From Sallanches, however, the road improved, and the wild gorge scenery surpassed anything of its kind we had yet seen, including the famous gorges of Arly. For a spell the road was a mere ledge on the face of an immense rock wall, falling sheer to a brawling torrent on one side, and rising on the other to the sky; then would come an abrupt change, and we should find ourselves clattering through a tunnel bored through the overhanging rock. The din of the exhaust in these road tunnels was tremendous. One tunnel seemed to form a natural drain, and, in it, water dripped upon us from the roof, whilst the wheels sank over the rims in mud. Another, which we entered with extreme caution, appeared to have no outlet, and for a short distance on entering we were enveloped in inky darkness; then a flickering light became visible, which proved to be an oil lamp, placed at a point where the tunnel took an abrupt turn and at which the other end came in sight.

(To be continued.)

Bombay-Poona Motor Cycle Trials.

"The Bhor Ghat," described in accompanying article. Gradient 1 in 3 to 1 in 12, and rising 2,900 feet in under four miles. Mr. Pat Stewart says a two-speed geared machine is absolutely imperative here.

THE road between Poona and Bombay has always been considered formidable, and has taxed many a high powered car. It was considered next to impossible for a motor cycle. No one essayed it, because the general impression was that the journey could not be done. But, as *The Daily Telegraph* of Bombay says: "People are beginning to see that you can get *there* if you once start on a motor cycle. As the motor car passed through the road of loud epithets, slowly and surely the motor cycle is wading its way through."

A team of motor cyclists, composed of Bombay riders, agreed to meet a representative team from Poona on friendly terms on the Bombay-Poona road, and the following riders competed:

BOMBAY.

Mr. H. Khambatta (5 h.p. Vindec).
Mr. S. Peck (3½ Norton).
Mr. G. L. Narasimham (2¾ h.p. Vindec).

POONA.

Mr. Pat Stewart (3½ h.p. Riley).
Lieut. Salmond (3½ h.p. Triumph).
Lieut. P. Noel (3½ h.p. Triumph).

As one of the Bombay riders failed to put in an appearance, the fourth rider (Mr. Gillard), astride a 2 h.p. Lurquin-Coudert, agreed to ride for both sides. Everyone jeered at the idea. If they thought a 5 h.p. machine would never get through, how small was the chances of the L.C.? As it happened, every rider finished, averaging more than fifteen miles per hour. There were no breakdowns, and the machines only required cleaning to restore their original appearance. The first twenty-two miles were over an incorrigibly bumpy surface to Thana. Here a halt was made, as a stretch of sixty miles with a huge ghat was to be surmounted before there could be any thought of refreshment. The road was in good condition, and all the riders made excellent time, but were occasionally checked by huge herds of cattle. The astonished natives in the villages turned out in masses to see the riders fly through, and wondered if the machines they bestrode bore any relation to the oft-seen car. All were destined to stop at the ghats. Some pushed, others got pushed, and some put in Herculean work

Mr. G. L. Narasimham (on a single cylinder Vindec Special) made third best time.

Bombay-Poona Motor Cycle Trials.—

at the pedals; but a 1 in 4 gradient is too steep for a single geared bicycle! The small engines struggled bravely, and with one final cough came to a standstill. The ghat has some picturesque spots, and the riders had time to "breathe" and admire them.

At lunch time the rival teams were only separated by twenty-two minutes. The road from Lanauli to Poona is of the best, the road is smooth, and few people use it. The riders lined up at 4 p.m., and all had completed what proved to be an enjoyable run by 6 p.m. The collective times were Poona 20h. 3m., Bombay 20h. 52m., so that Poona beat Bombay by 49m. Medals were distributed to the Poona team, and the net time was:

Mr. P. Stewart, 5h. 51m. (Poona).
Mr. S. Peck, 6h. 30m. (Bombay).
Mr. G. L. Narasimham, 6h. 33m. (Bombay).
Lieut. Salmond, 6h. 49m. (Poona).
Lieut. Noel, 6h. 52m. (Poona).
Mr. H. Khambatta, 7h. 49m. (Bombay).
Mr. Gillard, 8h. 51m. (Bombay).

Mr. and Mrs. F. B. Stewart very kindly followed the riders in a Brown car to give them encouragement, and carried liquid refreshment over the ghats for the thirsty riders.

Another run is being contemplated to Ahmednagar, although one or two of the riders are going to essay Calcutta, and another is attempting the journey from Bagdad to France.

BOMBAY-POONA MOTOR CYCLE TRIALS. SOME OF THE COMPETITORS.

Mr. S. Peck, who is touring India on his Norton Motor Bicycle, and did second best time.

Lieut. Salmond (3½ h.p. Triumph), one of the Poona team.

Mr. Pat Stewart (3½ h.p. Riley), who made best time.

Mr. Gillard, who rode the lowest powered machine in the trials—a 2 h.p. L.C.

LIGHTWEIGHT MOTOR BICYCLES.

The 1907 Stanley has made it quite clear that a really efficient lightweight low-powered motor bicycle must be in future added to the popular and successful classes. This is a great advance, and it is obtained by the perfection of two parts of the machine. The engine is a great deal more efficient than those fitted to the ancient low-powered machines, which were condemned in these pages so unreservedly a few years back; and very light and efficient magnetos have been substituted for small batteries. The early lightweight machines were damned by engines which developed less than half their power as soon as ever their revolutions fell below the maximum. The modern miniature engine develops a very fair proportion of its full power at its medium rates of turning. Again, with battery ignition, one could never feel comfortable on tour with less than two 20 ampère hour cells, which meant a bulky tank and a good deal of weight, and even in running about near home dependence on a single light cell of small capacity did not inspire confidence. With a magneto one feels safe at Thurso or on the top of Dartmoor, and weight is saved. A further point is the efficient manner in which a ratio of belt gearing suited to these small engines is attained, without courting heart-breaking belt troubles. I am of opinion that several of the light machines now on the market are thoroughly reliable and efficient touring mounts. The public will be slow to realise this if the producers of these machines fail to enter them in the long trials to be held this year. The Motosacoche has been on the Continental market for years, and only in the last year or so has it acquired any English *clientèle*—simply because the present energetic policy of putting it through long distance reliability trials has only recently been adopted. I hope to see all the lightweight motor bicycles represented in the End-to-end next June, and if three or four machines of this type come through that trial with flying colours—as they could do—we shall tap a great army of potential riders who are at present afraid of the 150 lbs. 3½ h.p. machine. IXION.

OCCASIONAL COMMENTS · BY "IXION"

Knocking on Hills.

I have had a number of letters lately referring to the existence of "knock" in engines that have run a year or two in private hands. The majority of these refer to knocks which only occur on hills, and are accompanied by a failure to climb hills which formerly presented no difficulty. I have no hesitation in saying knocking of this description is generally nothing more or less than loss of power. There are many engines which will always knock, however perfect their condition, when they are put at a hill that is too steep for them. The knocking is merely the engine's way of signifying that the work is too hard for it, that it is being "overloaded," in other words. There is another knock which may occur on level ground, and is accompanied by great heating of the cylinder. This is pure overheating, and points to bad lubrication, bad carburation, or partial clearance of the burnt charges. There is also the mechanical knock, occasioned by worn bearings, cylinders, etc. Of the three, the commonest is that due to loss of power and found solely on hills. Sometimes an engine suffering from this sort of knock will also knock when running very slowly, as the explosions no longer generate sufficient power to enable the machine to travel at as low a pace as formerly. In such cases the knock will disappear when the ignition has been adjusted, the valves ground in, or other cause of loss of power been remedied.

The Non-skid of the Moment.

A number of winter riders are exceedingly enthusiastic about a new pattern of non-skid, which resembles the old steel studded treads in its conformation, but which consists wholly of rubber, the tread and the studs both alike being of indiarubber. I should like to recommend this tread for a trial by any all weather riders among my readers. It is far pleasanter to handle than a steel and leather tread should a puncture occur, the rubber studs "drag" less than steel studs, and so the cover may be relied upon not to creep without the use of security bolts, and, lastly, the studs wear less rapidly than steel, and there is no separate tread to "peel." A tread of this type purchased now should not be smooth, even if driven daily, until spring brings us roads on which smooth tyres are safe. It is particularly suited to the rear wheels of light tricars, and takes quite enough grip on the road to prevent tailwagging.

Dual Lamp Brackets.

A number of us who regularly drive at night are taking a wrinkle from the participants in the all night trials of last season, and are regularly carrying two lamps, so that if one fails we need not stop and mess about with a clogged or drowned generator on the road, but simply light up the spare one. A further advantage is that double the amount of light may be obtained at will. But the difficulty is that no accessory maker seems to stock a double lamp bracket. If any reader knows where to obtain one, perhaps he would kindly inform me, and if unobtainable at present, perhaps someone will kindly design one to fit standard machines, and market it. I have only one at present that I made myself, and it is a nuisance to keep changing it, in addition to the lamps and the generators, from one machine to another.

Tips for Winter Riding.

1. Nailed boots are useful for starting the machine on grease.
2. No matter how many pairs of gloves are worn, the top pair should be leather or rubber. Wool gives a miserable grip on metal.
3. The bottommost pair of socks or gloves should be silk.
4. Start warm.
5. Earflaps are very little good. The best ear protector is a pair of pads or rolls of cloth, which shoot the wind over the ears, and are held by elastics passing over the forehead and under the chin.
6. A very thick cap is necessary, or a roll of wadding should be slipped under the peak of the cap.
7. "Snowshoes" (overboots) are very cheap and comfortable.
8. If a reefer jacket is worn, its flap will be too short to adequately protect the abdomen when in the saddle, and a cholera belt will prevent chills.
9. Goggles are necessary, but should be left on the peak of the cap for the first hundred yards after each fresh start, until the wind has cleared them of condensed moisture.
10. A pair of footless stockings may with advantage be worn over the ordinary stockings under the gaiter.
11. "Whipcord" lined makes an excellent winter riding suit.
12. Don't forget the Thermos flask. It alleviates wayside troubles in the frost.
13. Alcohol only warms for the moment, and then leaves you colder than ever.
14. When the fingers are numb, circulation is more quickly restored by swinging the arms in circles than by using the cabman's cross slap.
15. It is more necessary than in summer to overhaul belt, batteries, amount of petrol, supply of spares, etc., before starting.
16. If for any reason machine is a bad starter when stone cold, never let it get stone cold; *e.g.*, if a two hours stop be made at midday, slip into the shed after one hour and run the engine for two minutes on the stand. This will ensure an easier start when the time comes to leave.
17. The addition of a leather waistcoat, lined with wool, camel fleecing, or other similar thick material, will convert a summer suit into a winter suit.

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It is extremely flexible, due to Ball Bearing Engine.
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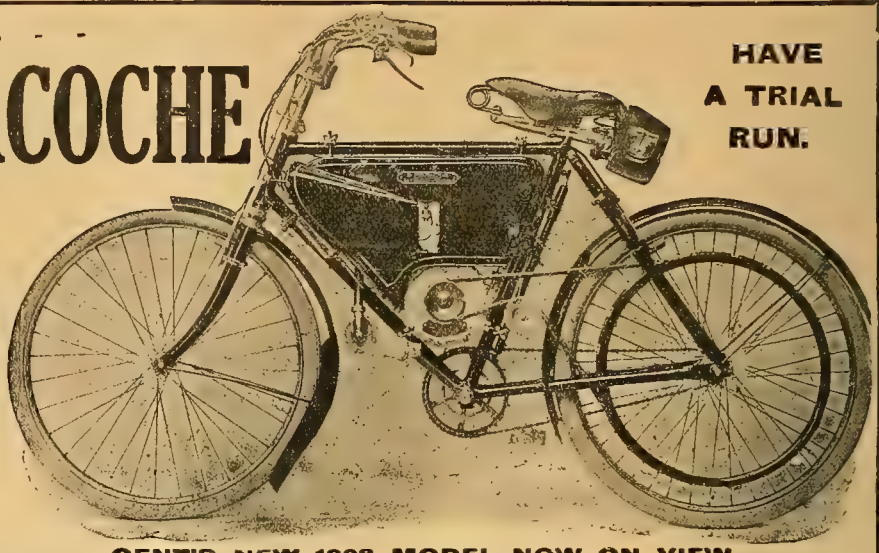

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Yours faithfully, H. E. Earl, 22, Hertford Street, Coventry.

IT IS A WONDERFUL HILL-CLIMBER.

The new 1908 model (1¾ h.p., single cylinder, accumulator ignition) is now on view at the Holborn head quarters and agents' depots. Full particulars together with catalogue sent post free per return to all enquirers. Send for these to-day, and arrange for a free trial run, in your own district, and at your own convenience.

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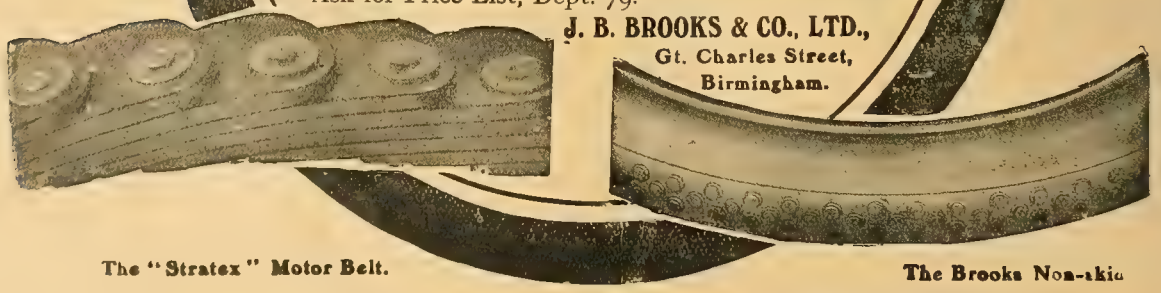


The "Stratex" Motor Belt. The Brooks Non-skid

QUESTIONS AND REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Trouble with a Coil.

I have a 2½ h.p. Quadrant motor bicycle, surface carburetter, and late last year completed a most successful tour through Ireland with, practically speaking, no engine trouble whatever; but now find that engine will not work with less than 5 volts through a very good coil. All electrical connections and contact points appear all right. Could trouble possibly be in coil?—W.N., Dublin.

Either your coil is becoming deranged or some of the connections are very dirty, and a great resistance is thereby set up to the path of the current. If connections are clean we recommend you to send coil to the makers to be overhauled.

Play in Bearing and Discharging Accumulator.

The connecting rod of my 3 h.p. Fafnir engine has a little play both at the big end and piston end horizontally. There is no play at all vertically. Is this correct? Will it do a 4 volt accumulator any harm to use it to light a 3½ volt lamp? How long should a 3½ volt lamp give a bright light from a 4 volt 20 ampère hour accumulator?—FL 39.

As long as there is no vertical play you need not trouble. You are doing quite the right thing to use a lamp with your accumulator. It has a most beneficial effect since it runs down the accumulator through the resistance of the lamp, and ensures it being charged regularly. It is impossible to say how long the accumulator would light the lamp, since the amperage of the lamp is not given.

Power for Passenger Work. End-to-end Route.

I am going in for a motor bicycle, but should like one to take a sidecar at times. Would a 1908 Triumph be suitable? or would it not be powerful enough? Can you tell me the route generally followed by trials riders from Land's End to John-o'-Groat's?—C.W., Yeovil.

The machine in question would take a sidecar on fairly level roads with passengers of average weight. If you want to do any serious hill-climbing you must get a good two-speed gear fitted. The following will give you an idea of the road followed from Land's End to John-o'-Groat's: Land's End Penzance, Redruth, Bodmin, Launceston, Exeter, Cullompton, Taunton, Bristol, Gloucester, Worcester, Bridgnorth, Whitchurch, Warrington, Preston, Lancaster, Kendal, Carlisle, Lockerbie, Lanark, Stirling, Perth, Dunkeld, Pitlochry, Dalwhinnie, Carrbridge, Inverness, Alness, Tain, Golspie, Berriedale, Wick, Keiss, John-o'-Groat's.

Relating to Lamps.

(1.) Can one or two additional lamps be legally carried in any position on front of motor bicycle, say attached to either end of front wheel spindle or either side of fork? I want extra light near the ground in addition to the regulation headlight with number-plate attached. (2.) Do you recommend the use of a rear red light on motor bicycle? (3.) Are wind guides or scoops of any use for cooling 2½ h.p. motor cycle engine?—J.T.S., Newcastle.

(1.) As long as one lamp is carried in the usual position and illuminates the number properly, that is all that is required by law, but there is no law to prevent you carrying two or three lamps. (2.) For your own safety's sake a red light is advisable, especially if you ride on roads much frequented by motor cars. (3.) Wind scoops would assist in keeping your engine cool, but are not generally used.

Interested in a Small Car.

I am looking out for a light four-wheeled car for self and wife. At present I have a 3½ h.p. motor bicycle. Kindly tell me if the running expenses of a 6 h.p. car would be more than double those of the motor bicycle, which I may say is very economical? Also please recommend the most simple small cars you know, as I am no mechanic, and I must have a reliable car? This district is not very hilly, but occasionally 1 in 7 gradients are encountered. Price must not exceed £150.—E. S., Notts.

You should be able to select a car to suit your requirements from the following: 6 h.p. Rover, 8 h.p. Phœnix, 6½ h.p. Clyde, or a 9 h.p. Riley. The lowest-powered car would be cheapest to run. The expenses would be at least treble the running cost of a 3½ h.p. motor bicycle.

Plain Coil and Timing of Engine.

My plain coil makes a click as if a spark jumped two points when contact is made at make and break. What is wrong, and should I get it repaired, and please say where? I cannot manage to time engine properly. The exhaust opens too soon if I set wheels one way and closes too early, and *vice versa*. I time by moving large cog wheel. Should I turn the pulley wheel instead? I mean move smaller cog wheel while holding top one steady?—A.J.G.R.

The noise you refer to made by your coil is caused by the discharge of the condenser. Provided it fires all right nothing is wrong, but if, on the other hand, there is no spark at the high tension wire, you may safely assume that the insulation is broken down. This, however, is most unlikely. If the exhaust cam and pinion are in one piece you cannot alter the timing except one tooth either way. The trouble is due to the teeth of the wheel being too large, thus preventing a delicate adjustment being effected, or the cam may be badly worn.

Alterations to Existing Machine.

I have a 3½ h.p. Kerry, built in a Chater-Lea loop frame. The engine is slightly inclined, and has a De Dion carburetter. I have fitted long handle-bars and placed the saddle low over the back wheel. Will this counteract the effect of the frame being rather high? Have also fitted a new belt rim on back wheel, as the belt was not in line. I have been told some old pattern machines had this defect. Do you advise me to alter the position of engine to vertical, and would you advise discarding De Dion carburetter in favour of a smaller and lighter make? Is it advisable to have a short exhaust pipe to the silencer?—F 1935.

Placing the saddle further back and fitting longer handle-bars would not correct the fault of the frame being too high, but it would certainly be an improvement. There is no particular object in altering the position of the engine. Provided the carburetter works well, we should advise you not to alter it. The longer the exhaust pipe the better, as it tends to cool the gases and to reduce the noise

Carburetter Freezing.

On Boxing Day I went for a run on my Minerva, and engine pulled well until some snow settled on carburetter (Brown and Barlow), after which machine gradually slowed down and stopped, and I could not get it to start again. The accumulator was fully charged, and the spark good. Next day it started immediately without further trouble. On my next run I wound strips of flannel round the carburetter, and had a grand run until within five minutes of home, when I experienced the same trouble. After placing the machine in a warm kitchen it went first rate after about half an hour. There was nothing in jet. Please say if carburetter was frozen, and if so, can you tell me how to prevent this? as I wish to use the machine all the winter.—T.Y., Erdington.

The trouble is caused by the moisture in the air drawn in becoming frozen. The B. and B. carburetter can be supplied with a hot air jacket, and if yours has one you had better have it connected up to the exhaust pipe for winter running. If it has not, see if you can arrange to move the carburetter nearer to the warm cylinder.

Jelly and Oil for Lubricating Engine.

I have used mineral jelly and rangoon oil mixed for lubricating the engine of a Vindec motor bicycle with apparently good results. I have only used this once or twice when I had run out of lubricating oil. Would you please tell me if it would be a good mixture, or if it would be detrimental to the engine? The mineral jelly is pure and of good quality. The rangoon oil is the best. A mixture of any thickness can be made by altering the proportions of the two ingredients. The mineral jelly contains a little alkaline of some sort to prevent the corrosion caused by the acid left after discharge of cordite powder, the jelly being used for cleaning rifle barrels. This, I imagine, would not hurt the metal of the engine, as it does not damage the steel of the rifle. I can obtain the mixture cheaply, and should like to know if it would be a good thing to use as lubricating oil? Would the rangoon oil alone be a good thing for lubricating the magneto and bearings of the bicycle parts.—CAPT. R., Punjab, India.

We are very much interested in your letter. The disadvantage of rangoon oil is that it oxidises and thickens after standing, and consequently would not be very good for the magneto. The mineral jelly thins considerably at high temperatures, and there is a slight risk of the engine seizing unless a large quantity of the mixture is used. If you care to try the experiment it would be most interesting to see the condition of the engine after a continuous use over a stated period; starting, of course, with the pistons and cylinder heads perfectly clean.

A Slight Loss of Power.

I have a 2 h.p. Laurin and Klement motor bicycle, accumulator ignition, trembler coil (new), and make and break contact. Can you inform me what speed I should obtain on level? My weight is nearly twelve stones. The compression of engine is very good, but still I cannot climb hills of any length such as Barnet Hill. I have adjusted coil and contact breaker so as to get best speed when engine is running on the stand. I think the cylinder wants cleaning, as the engine knocks slightly on steep hills. Would this affect speed at all?—F.W.C., Finchley.

The speed the machine should attain is about twenty-five miles an hour, depending on the gear. It is most probable that if you clean the cylinder you will find a great improvement as regards speed and hill-climbing. You will never be able to ascend very steep hills without pedalling, or a low gear, as 2 h.p. is too low for your weight.

Puncture-proof and Non-skid Bands.

I ride a four-cylinder F.N. 1907 motor cycle, and have up-to-date had Englebert and Dunlop tyres fitted. In England everything went satisfactorily. But as soon as I commenced touring on the Continent nothing but misfortune to my tyres overtook me. On one journey from Marienbad to a friend's place in Bohemia (some 270 kilometres) I had no less than seven punctures—four of them nails. At the present moment I have two comparatively new Dunlop tyres fitted. In a little over a month's time I intend riding from here to the Riviera to play tennis, a distance of about 1,500 kilometres, and the roads are of all kinds and conditions. (1.) Can you tell me a good tyre and inner tube to fit on my back wheel? Non-skid would be best, would it not, for the work? (2.) Or can you tell me of any non skid band? (3.) Are puncture-proof bands placed inside the cover of any use? It is only fair to mention that in all my rides through Austria Hungary, Germany, and Switzerland, my F.N. machine has behaved admirably, and though a perfect novice as far as machinery is concerned, my good steed has not once held me up over many thousands of miles of unknown and sparsely populated country. I might also mention that I can come off my machine after some hundred odd kilometres and play tennis without any detrimental effect.—A.F.W., Hungary.

(1.) We should recommend a 26in. by 2½in. voiturette tyre of any first-class make. (2.) Or the same tyre after the corrugations have been run smooth, fitted with a rubber or leather studded non-skid band. (3.) Yes, the bands would no doubt prevent punctures from small nails and thorns, but they would hardly be necessary with an outside band which serves both as a puncture preserver and also as a non-skid. We are much interested in your remarks.

"The Autocar," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. Issued weekly.

Mr. Pat Stewart on his famous Riley—the hero of many runs. He made best time in the Bombay-Poona Motor Cycle Trials last month. (See pages 44 and 45.)

CLUB NEWS.

Cardiff M.C.

The annual meeting of members of the above club will be held at headquarters, the Queen's Hotel, Cardiff, on Tuesday next, January 21st, at 7.30 p.m. sharp. The secretary's report and balance-sheet, which will be presented at the dinner, shows a balance in hand of £34 17s. 9d.

Southern M.C.

On Wednesday, 1st inst., the club gave a farewell dinner to their hon. sports secretary, Mr. S. W. Philpott, at the Boulogne Restaurant, Gerrard Street, W., on his leaving London to take up a position with a prominent motor company in the North of England.

Auto Cycle Union.

The annual meeting of the private members will be held at the Royal Automobile Club, 119, Piccadilly, London, W., on Thursday, January 20th, at 7 p.m. Business: (1.) To elect delegates on General Council. (2.) To consider the agenda for the annual general meeting of the Council, to be held on February 15th. Notices of any proposition to be brought forward for the consideration of the private members at the above meeting should be sent to the secretary before Friday, January 24th, at 18, Down Street, Piccadilly, W.

The annual general meeting of the Council will be held at the Hotel Cecil, Strand, W.C., on Saturday, February 15th, at 3 p.m. Any notices for the agenda must be in the hands of the secretary by Monday, January 27th.

Worcestershire M.C.C.

At a meeting held at Northfield on Saturday, the 11th inst., it was decided by those present to form a motor cycle club for Worcestershire, having its headquarters at Bromsgrove. The chair was taken by Mr. Norman Pollock. Business was discussed, and the following officers elected: Captain, Mr. E. Burgess; vice-captain, Mr. Denley; committee, Messrs. E. J. Smith (Bromyard), E. Burgess (King's Norton), R. T. Wood (Worcester), L. C. Wakeman (West Heath), R. N. Corah (King's Norton), and G. Sanders (Hopwood). The subscription was fixed at 7s. 6d., with an entrance fee of 2s. 6d. per head. It was decided to name the club Worcestershire Motor Cycle Club, and also to support the A.C.U.

All communications should be addressed to the hon. secretary and treasurer, Mr. H. C. Pickering, St. Brelade, King's Norton.

Brighton and District M.C.

Local motor cyclists are this year to make a determined effort in Brighton to band themselves together, realising that union is strength. The Brighton club was formed last year, but for some reason or other was not supported with that whole-hearted enthusiasm the committee rightly expected, and was not what might be called a complete success. But this year it is to be run on entirely new lines, and it is confidently hoped that the 400 odd motor cyclists in the town will do their utmost to further the interests of their favourite pastime. Drastic reforms are contemplated by the club, and will be discussed at a general meeting to be held at the Royal Pavilion Hotel, Castle Square, Brighton, on Tuesday, January 28th, at 8.30. It will be suggested at the meeting that the annual subscription of 10s. be reduced to 5s., and that the entrance fee of 5s. be lowered to 2s. 6d.

The Western District M.C.

This club recently held a ten miles speed-judging contest to decide the ties in the last penalty run. The result was as follows:

1. E. Boxall (3 h.p. Triumph).
2. R. T. Tomkins (3½ h.p. N.S.U.).
3. A. R. Canham (3½ h.p. Brown).
4. A. L. Marchal (3¼ h.p. Rex).
5. H. Edwards (3½ h.p. Brown).
6. C. N. Gould (3½ h.p. W. and P.).

The roads were in excellent condition, and in addition to the competitors, there was a good muster of members.

The prizes offered for the best attendance at club runs have been won by Mr. Wilson Prosser and Mr. H. Williams, each of whom only missed two runs during the year. The introduction prize was won by Mr. R. R. Babbage.

The annual dinner, distribution of prizes, and concert, will be held on January 21st at the Milford Hotel, ladies are invited. Tickets, price 4s. each, may be obtained from any member or from the secretary, R. R. Babbage, 16, Rigault Road, Fulham, S.W.

North-west London M.C.C.

The first annual dinner took place on Saturday last, over forty members and friends sitting down to an excellent dinner at the Hotel Boulogne. Mr. W. H. Pidgeon made a really fine chairman. After the cloth was cleared a very good musical entertainment was contributed to by Mrs. Norwood Brown, Messrs. Fausset, Hunt, Peachey, and Pidgeon, for which those present showed their appreciation in a right hearty manner. In proposing the toast of the chairman, the Secretary mentioned that the club intended holding a twelve hours open reliability trial early in the year. Mr. W. H. Pidgeon generously offered to provide a prize for the trial.

York County M.C.C.

A general meeting was held at the Grand Central Hotel, Leeds, on Thursday last, which was attended by a large number of members. A proposal was placed before the meeting limiting the membership, which was carried practically unanimously. Several nominations were received for membership, which will be brought before the next committee meeting. It was decided to organise several important competitions during 1908, viz., a petrol consumption trial to be held in April, followed by a hill-climb, a twelve hours non-stop and reliability run, a twenty-four hours reliability trial, and a speed contest. Mr. H. H. Charge promised to provide a trophy for one of the above events. By the way, the twelve hours non-stop run was adopted as the result of a suggestion appearing in *The Motor Cycle*.

Coventry M.C.

The above club held its fourth annual dinner and distribution of prizes on Saturday last at the Craven Arms Hotel, Coventry, when over sixty members and friends attended.

The chair was occupied by Mr. John V. Pugh, J.P., who distributed the cups, medals, and prizes won in last year's competitions. These prizes, to the number of thirty-five, made an excellent display. During the evening *The Motor Cycle* Challenge Cup, which is held by the Coventry M.C., was filled and passed round among the members.

The toast list was a short one, and after "The King," rendered with musical honours, "The Club" was proposed by Mr. H. W. Staner, and replied to by Mr. H. Sturmey. Mr. V. A. Holroyd proposed "The Prize Donors and Visitors," which was replied to by Mr. R. L. Jefferson, F.R.G.S. Mr. Staner announced that the club intended to organise a twelve hours' ride from Coventry to Holyhead on a date to be decided. This will be open to members only, and will partake more of the nature of a lengthy club run than a competition, although probably certificates will be given to all who complete the distance within the allotted time.

The toast list was interspersed with songs, a whistling solo, and a recitation. After Mr. J. K. Starley had proposed a vote of thanks to the Chairman, who suitably replied, the evening was brought to a close with the singing of "Auld Lang Syne."

Lincolnshire M.C.C.

There was a very good attendance at the annual meeting of the Lincolnshire M.C.C., at the Spread Eagle, Lincoln, on Saturday. Mr. A. W. Foster was in the chair, and a very interesting report was presented. It was decided to ask Earl Brownlow to accept the position of president, and to ask Mr. C. W. Pennell, Dr. Mansel Sympson, Sir G. Doughty, M.P., Sir Hickman Bacon, Major J. A. Cole, and Major Longstaff to become vice-presidents. Mr. A. W. Foster was re-elected chairman, as Dr. Godfrey Lowe had resigned, his resignation being received with regret. Mr. A. E. Brunning (Lincoln) and Mr. R. N. Morley (Leadenham) were elected, with the chairmen of the centres, as a committee to officiate at all meetings in their respective districts. Mr. Wilkinson was unanimously re-elected hon. secretary and granted a small honorarium. Mr. A. Nissler was elected treasurer in place of Mr. Halkes resigned. Mr. P. M. White was re-elected auditor, and Mr. C. Nelson, who has done so much for the club, was re-elected honorary solicitor. The chairman (Lincoln), vice-chairman, secretary, and solicitor, were elected an emergency committee.

The question of affiliation was left to the committee, who will ascertain what steps the A.C.U. will take as the result of the Lincoln conference. The Secretary stated that the A.C.U. would make such an offer as would be entirely acceptable.

It was decided to have a club badge and a club journal.

In future all new members will sign the application form and pay the fee at the same time.

CURRENT CHAT

BOMBAY-POONA MOTOR CYCLE TRIALS.

A SEVEN-CYLINDERED PETROL ENGINE.

SPECIAL FEATURES

Imports of Motor Cycles.

A total of 1,770 motor cycles were imported last year, as against 1,755 in 1906 and 1,700 in 1905. The value with parts was £78,746 in 1907, £80,804 in 1906, and £79,843 in 1905.

The Exports.

799 British motor cycles were exported during 1907, 739 in 1906, and 688 in 1905. Their values, including parts, equalled £53,522 in 1907, £50,588 in 1906, and £40,589 in 1905. This is an increase of £12,933 in two years.

Re-exports of Foreign Parts.

The Board of Trade returns for the year ended December 31st show that £7,645 worth of foreign motor cycles and parts were re-exported from this country, in addition to the exports of British machines mentioned above.

Manchester Motor Show.

We are desired to state that the date of the Manchester Motor Car Show at Belle Vue has been altered from Friday, February 21st, to Saturday, February 29th next, owing to clashing of dates which threatened to take place as regards the two Manchester shows.

New Taxes in Austria.

On January 1st a bill came into force in Austria levying the following annual taxes on motor vehicles: Motor bicycles 8s., with sidecars £1 5s.; cars of 10 h.p., £3; of 25 h.p., £4; of 45 h.p., £6. The proceeds are to be devoted to the upkeep of the roads.

Royal Commission Recommendations.

In this country the recommendations of the Royal Commission provide for £1 tax on motor bicycles, £2 2s. for cars not exceeding 12 cwt., £3 3s. up to 15 cwt., £5 5s. up to 25 cwt., and £8 8s. for cars exceeding 25 cwt. Trade and public service vehicles to pay one half of these rates respectively.

The Legion of Frontiersmen Despatch Ride.

Several members of the Great Yarmouth command of the Legion of Frontiersmen decided to finish up the old year with a despatch ride. They paraded at 9 a.m. sharp at the Corn Hall on Boxing Day. The arrangements were most ably carried out on general written instructions issued to each trooper by the organising officer in command, Mr. A. F. Fitch (who has been unanimously elected to lead the troop). Corporal A. H. Watts left the Corn Hall at 9.58 a.m. on a 3¼ h.p. Singer tricar without front seat, with a despatch addressed to Mr. G. W. Wilkin, J.P., Cromer. He was given 32m. start, and the remainder of the troop were then detailed off, with special written instructions for their various positions to take up, and to capture the despatch bearer on his return journey, no trooper knowing what roads he would take, either on the outward or homeward journey. The general orders were that every trooper was to conceal himself and horse in ambush, and to lie in waiting for the despatch bearer, who was to hold up on being challenged by a certain word. No men were to leave their ambush until 4 p.m., and all were to be on parade at the Corn Hall, Yarmouth, at 5.30 p.m.

Adverse Weather Conditions.

In spite of a bitterly cold head wind, with squalls of rain, sleet, and snow, and very heavy roads, making the "going" very rough, Trooper A. H. Watts delivered his despatch in Cromer

The first detachable tyre. An amusing drawing on a leaflet issued by the North British Rubber Co., Ltd., makers of the Clincher tyre.

at 12.30 p.m., practically two and a half hours, for a distance of thirty-eight miles. Considering the weather and roads, and two stops (one a most unusual one, viz., the snapping of both driving chains), this was a very smart piece of work indeed. He left Cromer again at 1.20 p.m. with another despatch from Mr. Wilkin for Yarmouth, and was smartly ambushed near Felmingham, on a by-road between Aylsham and North Walsham, by Trooper Delf, at 3 p.m. The return journey was then made, Yarmouth being reached well ahead of time allowance, and the captured despatch read over to the troopers all on parade, who were all weather stained, but "fit as fiddles." We are asked to state that recruits with motor cycles are urgently wanted in the Legion. Full particulars can be obtained of Lieut. Fitch, 66, Churchill Road, Great Yarmouth.

Paper before the A.C.U.

As Mr. W. H. Wells is in the trade he feels that it would not be advisable for him to give the paper, "Motor Cycle Tyres and Accessories" we announced a fortnight ago. The committee hope, however, to arrange for another member of the Union to read one on the same subject during this month, or to substitute another paper for it.

An Up-to-date Club.

The Basingstoke and District M.C. has a membership of over fifty, but of these only about fifty per cent. are actual motorists, the others have joined sometimes to support the club, but more often because of an interest in motors in general. The Basingstoke Club boasts a workshop for the use of its members, and the non-motoring members enjoy watching repairs and overhauling in the workshop. Spring forks, footboards, electric headlights, and an extra condenser for a coil and many other little things have been made, whilst really difficult repair jobs have been accomplished. Lectures are arranged during the winter months every fortnight.

Accident to a Well-known Rider.

On the last Sunday in the old year Mr. F. W. Applebee had the misfortune to collide with a savage dog, and was thrown from his motor bicycle on the footpath, sustaining a badly injured shoulder and slight concussion of the brain. He had been a hundred miles spin to see some friends, and was within ten miles of home (viz., Ponders End) when the accident occurred. Mr. Applebee lay stunned for some time before he was taken to a cottage close by, and after two hours' kind treatment he was able to ride home. We are glad to say that he is now almost recovered, and is hopeful of riding in the Quarterly Trials on Saturday week.

Address Wanted.

On December 16th, 1907, we sent a reply addressed to V. G. Hirst, Esq., c/o G.P.O., London. This letter has been returned to us marked "Not called for." If this should catch Mr. Hirst's eye, and he will communicate with us, we will forward the letter to the correct address.

Motor Cycle Club for Sutton Coldfield.

A meeting of the residents of Sutton Coldfield interested in motor cycling was held on Saturday night at the Royal Hotel to consider the advisability of forming a club for the district. Mr. F. H. Finney presided. It was decided to form a motor cycle club to be called the Sutton Motor Club.

Motor Union Road Signs.

One hundred and thirty road signs have now been issued by the Motor Union. Most of these have been sent to members.

Petrol Reduced.

Early last week the news went round that the British Petroleum Co., Ltd., have reduced by one-halfpenny per gallon the price of both Shell and their .760 spirit.

The Lewisham Road Trap.

When will the A.A. send a scout or two in this direction? The police have made good bags of cars and cycles at this spot. Situated on a favourite motoring road out of London, a wide stretch of level and clear good paved road, the police have marked their course well.

The Rights of Motor Cycle Owners.

At the North London Police Court, on Monday of last week, Mr. H. J. Kimbell, of Holloway, appeared to answer an adjourned summons, which alleged that he had assaulted Mr. Sturt, an official under the Petroleum Acts for the London County Council. The complainant said that on November 26th he went to defendant's premises to see where his petrol was stored, but the defendant would not allow him on the premises, and pushed him out. This was the assault complained of. Mr. Tilly (defendant's solicitor) submitted that it was an unwarrantable intrusion on the part of the inspector. The defendant had a motor cycle and stored his petrol in the tank as the law allowed. He made no application to be registered for the storage of petrol, and therefore resented the officer's intrusion. Mr. Carter said that the defendant was on the list of motor cycle owners, and they were visited to see where they kept the motor spirit. Mr. Butler, the predecessor in office to Mr. Sturt, had been to defendant's house and had been shown the motor cycle and a two gallon can in which the spirit was kept. Mr. Kimbell said he was not aware of his visit, and he repeated all the petrol he kept was in the tank of his machine. Mr. Fordham, in the end, said this was only a technical assault. The defendant, not having made an application for the storage of petrol, naturally resented the intrusion. Whilst always anxious to protect public servants, he thought this summons ought to be dismissed on payment of 21s. costs.

Obstructing the Police.

Another automobile association patrol has been charged with obstructing the police at Newmarket in warning motorists of the existence of a police trap. Sir Charles Matthews defended, and the case was dismissed. In a recent case at Kingston the A.A. patrol, it was proved, was standing in the middle of a measured distance, and the committee of the Association, we think, properly dismissed the patrol from its service.

An Enthusiast.

Professor Carlton Lambert, M.A., a member of the Blackheath A.C., owns a car as well as a Rex twin with Roc clutch on which he does a good deal of riding. Recently, we referred to the novel three wheel runabout designed and built by Prof. Lambert's son, who shares his father's enthusiasm over motor cycling.

French Motor Cycle Match.

The ten kilometres match between Giuppone and Moreau, at the Vélodrome d'Hiver on the 5th inst., resulted in a win for Giuppone in 6m. 53⅘s. Moreau was beaten by about twelve yards.

The A.C.C. de France Reliability Trials.

Following on the short paragraph we published last week regarding the above trials, we now learn that the machines will have to maintain an average speed of not less than 15½ miles an hour, and one mark will be deducted for every half minute lost. The machines will be placed under lock and key at the end of each day's run, and the parts of each machine, such as cylinders, crank chambers, combustion heads, carburetters, frames, forks, and hubs, will be sealed before the start. Both motor bicycles and tricars must be fitted with efficient brakes, mudguards to each wheel, and the bicycles must be provided with pedalling gear.

The Classification.

Competitors' machines in the A.C.C. de France Trials will be divided into classes as follows: Class 1, motor bicycles with a total cylinder capacity not exceeding 250 cubic centimetres. Class 2, motor bicycles with a total cylinder capacity not exceeding 210 c.c., and a maximum weight of 72½ lbs. Class 3, tricars with a total cylinder capacity not exceeding 500 c.c. It will thus be seen that the competition will be confined to motor bicycles of 2 h.p. and 2½ h.p., and tricars of 3½ h.p. The total distance to be covered by the competing machines will be about 1,000 miles, spread over six days, and the route selected will probably be Paris to Tours, then to Bordeaux, Limoges, Clermont-Ferrand, and back *viâ* Dijon.

Deposits in Cylinders.

Mr. Alexander Duckham is carrying out some exhaustive experiments to determine the cause of so-called carbonaceous deposits in the cylinders of petrol engines. Will motor cyclists who are interested in the above send to Mr. Duckham, c/o the Editor *The Motor Cycle*, samples of any deposits which they have found in their engines, together with, if possible, make of engine, type of lubrication, amount of compression, and any other points, for example, undue heating, which may have a bearing on the subject.

The Next Quarterly Trial.

Entries for the A.C.U. Quarterly Trial on Saturday, January 25th, must be in the hands of the secretary by Saturday next. This competition will provide the first opportunity for makers to prove the reliability and hill-climbing capabilities of their 1908 models. We notice that the regulations state that competing machines will be timed on Dashwood Hill as heretofore.

Of Interest to Foreign Readers.

We beg to remind foreign correspondents who live in countries under the Postal Union that, when British stamps cannot be obtained in these countries, a Coupon Réponse International (international reply coupon) can be obtained for a sum equivalent to 3d., which obviates the difficulty of enclosing stamps for reply.

Tyre Cover Stolen.

We are asked to mention that the Crypto Car and Cycle Co., 14, Mortimer Street, Regent Street, W., had a Hutchinson tyre cover stolen from the above address on the 6th inst. The number is 1633, diameter 880 mm., thickness 120 mm. The cover has a beaded edge, is covered with leather, the top surface being fitted with fibre blocks in which are three rows of steel studs.

Another Tarring Problem.

The problem how best to deal with tarred roads when wet is apparently far from being solved. At the meeting of the Foots Cray Urban Council strong complaint was made of the practice of strewing granite chips, which were said to be worse than the disease. They had caused a lot of damage to indiarubber tyres. It was decided to write to the Kent County Council on the matter.

The Cycle Trade Benevolent Fund.

The annual general meeting of the committee will be held at the Holborn Restaurant, High Holborn, on Wednesday, January 29th, at 6 p.m. The Council of the Society of Motor Manufacturers and Traders has decided to make a donation of £2,000 upon the requisite alterations in the constitution being effected to include members of the motor trade.

FUTURE EVENTS.

—:o:—

Jan. 21—Western District M.C. (London) Annual Dinner.
„ 22—Southend and District M.C. Annual General Meeting.
„ 24 to Feb. 1—Scottish Motor Show, Waverley Market, Edinburgh.
„ 25—Auto Cycle Union Quarterly Trial.
„ 27—Motor Cycling Club Annual General Meeting.
Feb. 7-15—Manchester Motor Car Show, Belle Vue, Manchester.
„ 8—Motor Cycling Club Bohemian Concert.
„ 15—A.C.U. Fifth Annual Dinner.
„ 15—A.C.U. Council Meeting.
Mar. 21-28—Cordingley's Motor Show, Agricultural Hall.
April ——Auto Cycle Union Quarterly Trial.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 32*)

Spring Forks.

137. Spring forks are almost a necessity on motor bicycles, and in choosing the best form of shock absorber, see that—

1. There are springs acting against each other, *i.e.*, one in tension and one in compression permanently, to avoid sudden rebounds.
2. That there is no lateral sway whatever.
3. That if any part of the device snaps or comes adrift, you are left with a rigid fork.
4. That if the springs are slung from hooks, the eyes of the hooks are closed or otherwise safeguarded, so that the springs cannot jump out of the eyes over bad bumps.

A spring fork provides all necessary comfort, and though a rear sprung frame is desirable in addition, yet its absence by no means condemns a machine.

BRAKES WITH SPRING FORKS.

138. Very few spring forks are suitable for use with a brake. Therefore—since the law requires it—insist on two good brakes being fitted to the rear wheel.

LAMP BRACKET WITH SPRING FORKS.

139. Some spring forks thrust the lamp bracket so far forward that the number will be in darkness if carried on the mudguard. This is bad practice, as the plate must then be affixed to the lamp, and it will cast a shadow on the road.

Tyres.

SIZE OF TYRES.

140. No motor *bicycle* needs larger tyres than 2¼in., but the thicker the tread the better for touring purposes. 28in. wheels render a machine high and top heavy, 24in. wheels set up vibration, and wear their tyres out abnormally fast; therefore 26in. by 2¼in. is the standard size for all motor bicycle tyres. Non-skids are unnecessary, but an armoured tread on the rear wheel adds a slight factor of safety on grease, and prevents punctures; on the other hand, it is apt to slip on very smooth dry surfaces, and if it should puncture it generates so much additional heat, that it is difficult to get the patches to remain in place; it is also very short-lived and expensive.

A tricar of whatever size is best served by a 3in. rear tyre, which should have an armoured tread to render fast driving over grease safe and comfortable; the front tyres of a very light tricar may be 2½in., but 3in. is better.

MAKE OF TYRES.

141. All tyre makers send out some very good and some very bad tyres. The different well-known tyres are fairly equal in wear and puncture-resisting properties, but not in resiliency. If a tyre does not attain its expected life, the makers may generally be relied upon for satisfaction.

CHANGING TYRES OVER.

142. As soon as a rear tyre shows marked signs of wear, it should be changed over with the front tyre. If an armoured tread is used, a new one can generally be substituted, if the cover be sent to the makers for the purpose before the fabric has received any damage.

PUNCTURE PREVENTION.

143. Always detach and replace the tyres with extreme care. Thin tyres can be "rolled" after replacement when semi-inflated. It is then possible to *see* if they are nipped or not. Keep the rim clear of rust, hammer all kinks true, and see no spoke heads project. If the tyre cover flap does not completely cover the bed of rim and touch the other bead, use an endless tape for this purpose. Always use nail-catchers. The best sort are home made, and consist simply of a stout steel wire strung between two clips mounted on the frame stays, and passing ⅛in. above the tread. Treat all cuts as soon as noticed, and at all stoppages inspect tyres for half-entered nails, etc.

SPARE TUBES.

144. Every motor cyclist should carry spare inner tubes, detachably jointed for bicycles and tricar rear wheels. Detachably jointed tubes may be divided into two classes, those having closed butts, and those having a continuous air passage. The latter are the best, but the edges of the joint must be smeared with Castile soap, to preserve an airtight joint. Of the closed butt class, the more tapered the butt, the better the tube. If the wall of the butt is at right angles to the central line of the tube, it will soon chafe through. Forswear all tubes not possessing standard English valves, as spare parts for these valves are not universally obtainable.

THE INFLATOR.

145. It is really hard work to blow up a 2¼in. motor cycle tyre with a small pump, and a folding foot pump is advisable. It should have a stout connection piece—cycle pumps will give trouble. Carry it either in spring X clips or by straps, not by rubber rings. If spring pin clips are used they should be carefully adjusted. On a tricar, fit clips in front of the dash to hold pump.

THE REPAIR OUTFIT.

146. This need not be a portmanteau, but a good sized box is advisable for tricar work. The small shilling outfits do not contain enough chalk for any repair, nor sufficient strong rubber or canvas for dealing with a big burst. I make up my own repair kits in old tobacco boxes. Requisites are:

Three one minute tyre levers.
Three spare valve rubbers.
A large carton of French chalk.
A piece of prepared canvas, six inches square. Ten patches of various sizes. Woodgate's Patch-Quicks are excellent
Large sheet of thin rubber for overlaying patches (six inches square).
Six inch square sheet of thicker patching rubber for bursts.
Sandpaper.
Small tube of good solution. Always test solution when purchasing by squeezing out a bead on to lip of tube, putting finger of free hand to it, and drawing out in a thread. Good solution threads out to a yard.

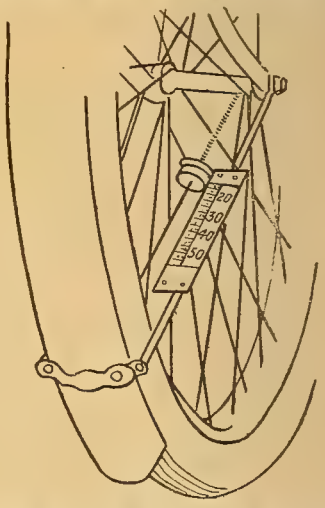
WEAR ON TYRES.

147. The front wheels of light passenger motor cycles often get out of line, when the tyres will wear rapidly. To test truth of steering, take a long straight-edge or a piece of string, and measure from centre of tread of one tyre to centre of tread of other tyre. Mark spots measured from, and push vehicle till spot has revolved half a circle, when measure again at points dead opposite original spots, and if body does not interfere, again at original spots. If wheels are in line, any spot central in the tread of one tyre is equidistant from the corresponding spot in horizontal plane on centre of the other tyre.

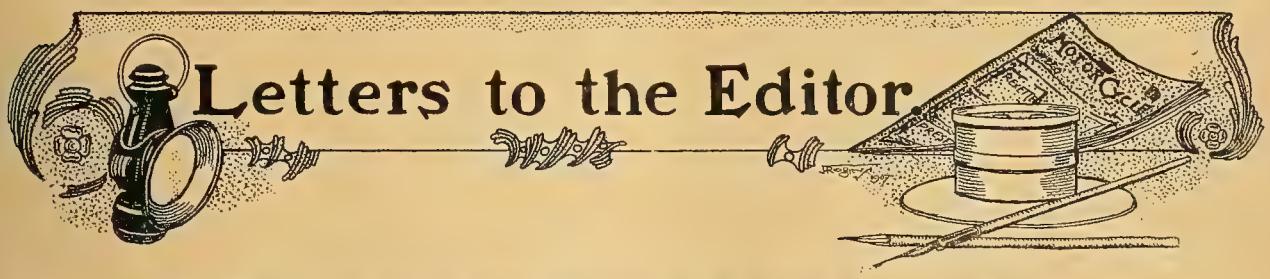
(To be continued.)

A NOVEL SPEEDOMETER.

A South American accessory firm has just introduced a rather novel form of speedometer which is remarkable for its simplicity and cheapness. It depends for its action on centrifugal force. A ball is threaded loosely on one of the spokes of the front wheel, held towards the hub by a light coiled spring, which is also threaded on the spoke. When the wheel revolves the centrifugal force causes the weight to



travel outwards and along the spoke, and obviously the faster the wheel revolves the further the weight travels outwards. The weight has a bright ring around it, and a graduated dial is attached to the mudguard stay. When the machine is moving, the figure or mark which the ring on the weight passes nearest, naturally indicates the speed at which it is travelling.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The Organisation of Motor Cyclists.

[3051.]—May I be allowed to utter a mild protest against Mr. J. H. Hall's remarks as to "not half" the committee of eight having done anything to "justify their election"? Some may prefer to go a different way to work than has Mr. Hall. Perhaps his remark is on the same plane as his boastful remark that he is the best friend the A.C.U. has ever had. The whole of the "eight" may have done a good deal. They may have effected more than Mr. Hall may be aware of. Has Mr. Hall consulted them all as much as ought to have been the case? Has he been as tactful as is advisable?

REFORM.

Variable Gears.

[3052.]—I have read with interest Mr. Hooydonk's paper "Variable Gears for Motor Bicycles" in *The Motor Cycle*. In a way, it practically says that the ideal variable gear or pulley has not been designed yet. What is wanted is a variable pulley which is positive in its action and has a means of keeping the belt taut, whether the pulley flange is open or closed, and this should be done without the aid of a jockey pulley.

I have designed a pulley which gives a variable gear from 5 to 1 to 12 to 1, and any gear can be obtained between those ratios without taking the hands off the handle-bar. I use no gearing of any description; in fact, there is nothing in connection with the belt with the exception of the pulley itself and the driving rim. The belt is practically at the same tension, whatever the gear is. All that is required to operate the pulley is a simple device, which can be worked with the thumb on the handle-bar. There is absolutely no loss from friction; in fact, there is nothing in connection with the pulley once the rider has set the gear he requires. Mechanically, it is simple and reliable and positive in its action in every way. I can fix the arrangement to any motor cycle with very little trouble at a cost of about £2 10s. to £3. Its life is as long as any ordinary V shaped pulley.

I shall be glad to correspond with any motor cycle manufacturers who are interested in variable gears. Variable gears are essential. There can be no dispute about that.

D. B. BREARLEY.

Another Magneto Mystery.

[3053.]—With reference to Mr. A. Wharton Metcalfe's interesting article, "Another Magneto Mystery," if I read his letter aright the defect must have been in the platinum point removed; I do not quite understand why the fibre ring was suspected and changed.

I would suggest that the cause of the trouble was an invisible speck of dust of a non-conducting nature imbedded in the platinum, preventing electrical contact between the points. This was rubbed off subsequently in handling, which would account for the same point working perfectly afterwards. The poor spark obtained at first after the new platinum was put in may have been due to a similar particle on the other point, which was hammered off at a higher speed.

How the invisible speck got there I do not know, but I have frequently removed a similar trouble by simply rubbing contacts, which were apparently perfectly clean, with the bare finger—the best weapon for the purpose. I fancy Mr. Metcalfe is in error when he speaks of "the vulcanite disc or cap on the spring fixed inside the dust cap." This disc is, I think, of carbon, and serves as part of the electrical path to those layers of condenser insulated from the earthed layers. A crack not interfering with conduction through this carbon would not matter.

One other mysterious cause for an apparently perfect magneto giving a poor spark is damp. The cure is to remove the condenser case and thoroughly dry out condenser and armature before a good fire. The easy starting obtained thereafter well repays the trouble. If this was done occasionally we might hear less about the difficulty of starting with high-tension magneto.

F. C. JAMES.

Outside Flywheels.

[3054.]—We have read very closely the letters about the question of outside flywheels.

As agents of the K.D. motor cycle, which is fitted with an outside flywheel, it is only natural that we are interested in the subject.

The writer of this letter has tested the machine in the most hilly parts of France, viz., the Vosges district, and he has come to the conclusion that, for efficiency, the outside flywheel is superior by far to the inside ones. The suggestion of mud throwing is a myth.

Designers may have abandoned the outside flywheel for motor cycles for the time being, but the time will come when they will take it up again, not to start a fashion, but because of its efficiency.

We may add that our flywheel is on a taper with a cotter pin. We do not enlarge on the mechanical side of the question, as your correspondent, Mr. De Havilland, has already done it in such an able manner.

LEO RIPAULT AND CO.

Motor Cycle Tyres.

[3055.]—I must say that I most heartily agree with Mr. Victor H. Raale [letter No. 2998] in what he says about the hardness of tyres. My own personal experience is, that a tyre which has a certain amount of "give" is, as your correspondent says, much less liable to puncture than a "board-hard" tyre.

One often hears of outer covers "giving out" at the beaded edge. Now, I believe in most cases the cause of this is due to the tyre being literally cut through by the edge of the rim in consequence of the enormous strain imposed upon it by having the tyres inflated "board-hard." Having been connected with the cycle trade for a number of years, I should like to put forth another statement in favour of the tyre with a "give;" for instance, when we wish to fit a non-slipping band to an ordinary push cycle tyre, we first of all roughen the tread of the tyre by filing it. Now in order to file the same quickly we inflate the tyre "board hard," and we find that by so doing we can get a rough surface in a very short time. This would seem to point to the fact that, should your wheels be at all out of truth, or the wheels skid through sudden application of the brakes, or again, as often happens, failure to raise exhaust valve quick enough, that the "give" tyre is not nearly so likely to have the rubber ripped away from the fabric. I sum up the advantages of "give" tyre as follows: Greater personal comfort, absorption of road vibration and shock, thereby saves strain on engine and frame. Saves wear of tyre and lengthens life of same. Takes a big strain off beaded edge, and safer on greasy roads

HENRY CUSDIN

All-the-year-round Motor Cycling.

[3056.]—Having heard much about side-slip, greasy roads, and motor cycling being only a fair weather pastime, I resolved at the beginning of last year to give it a trial "all the year round" and in all weather.

It will, I think, be generally admitted that 1907 was one of the worst years since the sport became popular (both as regards the weather and the condition of the roads). I am but a novice, and can lay no claim to being an expert driver. My time throughout the week is fully occupied with my business. I am not interested in any make of machine or accessories, so think I may say I am impartial.

Starting on the first Sunday of the year, with a twin Rex fitted with Hermetic non-skid cover on the back wheel, and an ordinary cover of the same make, with a self-sealing tube on the front wheel, from then until the end of August I never missed my Sunday ride, no matter what the roads or the weather were like. I averaged over 100 miles each week-end, but, owing to a slight accident, I was obliged to miss eight weeks during the latter part of August, the whole of September, and part of October, during which time, it will be remembered we had the finest weather of the whole year.

I resumed riding in October, and continued until the end of the year. During the whole of this time, and including the first four days of the A.C.C. trials (and most of the competitors will admit that the second day of these trials was as severe a trial as any of them could wish for, the roads, especially between Ashby and Buxton, but more especially

Mr. J. W. Fawcett, a member of the Leeds Motor Cycle Club, who rides probably the only three-cylinder touring machine in this country. The engine—which is a Jap—has vertical cylinders, and the drive is by belt.

in the vicinity of Matlock, and immediately after leaving Buxton, were as bad as it is possible to imagine them)—some 5,000 miles in all—I never had the semblance of a side-slip and never had a puncture, except between Chester and Ruthin, where, owing to some mischievous individual forcing some hobnails into my back tyre, I had trouble and delay. It must be borne in mind that we were free from snow all last year, but with that exception we had samples of all sorts of weather.

I have no hesitation in saying that, with a well-found machine and a driver with moderately good nerves, the motor cycle is an all-weather and all-the-year-round reliable means of travel.

With regard to clothing, I have found that when the roads are sloppy or inclined to be wet, a good pair of rubber sea-boots are the cheapest and most convenient covering for the extremities. No matter how bad the roads are, with a pail of water and an old sponge all mud from the knees down can be removed in a few minutes. For covering the body each rider has his own ideas, but if dry, no matter how cold it may be, I should advise him to shun waterproof covering for the body. Good warm coats and an extra vest or under shirt are all I have found necessary on the coldest day

Much has been said and written about the police and their ways. I should like to add that, with one trifling exception, I have received the greatest courtesy, consideration, and even help, from them. Treat them as men, and as one likes to be treated one's self, remembering that they have their duty to perform to all users of the road. Have a little consideration for others, and you may go throughout the length and breadth of our island without friction, or unpleasantness, so far as the police are concerned. E. NELSON.

Lubrication in the Trials.

[3057.]—We have read with interest in *The Motor Cycle* of the 18th ult. the remarks by your contributor, "Ixion," on the subject of overheating. We admire the enthusiasm that prompts him to carry a spare quart tin of his tried lubricant with him. If other riders were equally careful to use only the most suitable oil, we should hear a little less of the failures of motor cycles.

It is, however, with his remarks on supplies of lubricants on the long-distance trials that we are more particularly interested. In compliance with the wishes of a few of the competitors in last year's 1,000 miles trial, we arranged for them a small supply of oil at each of the night stopping places. One or two other competitors were similarly accommodated by another oil firm; whilst the majority of the competitors bought oil as and where they wanted it, and rarely used the same brand twice.

There were fourteen gold medals and special awards. Of these, twelve were gained by riders using our Motorine, and the other two were gained by riders provided for by the other firm. The competitors content to use whatever came handiest were the ones who lost marks for one cause or another.

Comment is needless.

PRICE'S PATENT CANDLE CO., LTD.

Rubber-studded Tyre Treads.

[3058.]—I am very much surprised to see what little interest is being taken in what is undoubtedly one of the best devices ever fitted to a motor cycle tyre, *i.e.*, the rubber-studded tread.

I know that these treads have been used a good many years in America with great success, but I personally took no interest in them until I saw them used on Mr. Hastings's motor cycle in the 1907 six days' trials. When I heard Mr. Hastings laugh before the trials when cautioned about the care he would have to take in going through Derbyshire in case the roads were very greasy, I thought he was rather premature, but when I saw him successfully negotiate some of the greasiest roads imaginable without the slightest sign of side-slips, I came to the conclusion that there must be something wonderfully good in the rubber-studded treads on his tyres.

It was only a few days after the six days' trials were over that I had these treads on my own tyres, and the results obtained are far ahead of anything I have ever before experienced. I have ridden under the very worst conditions for nearly 2,000 miles since fitting these treads, and have never had the slightest sign of a side-slip. I have recommended them to many of my friends, and they all agree with me that they are absolutely a preventive. Unlike the metal studs (which soon wear away), the rubber studs do not detract from the resiliency of the tyre in any way whatever, and, from my own experience, I should say that they would outwear three metal studded treads. At any rate, on my own tyres, after having been run 2,000 miles, the studs are nearly as good as when new, and show no signs of skidding in grease.

Unless I am very much mistaken, before another year has gone by metal studs will be (they certainly should be) prohibited on any self-propelled vehicle. Motor cyclists and cyclists know better than anyone else of the great damage metal studded tyres on cars are doing to our roads, and there is no question but what the Local Government Board's attention has been called to this fact. There are several firms manufacturing tyres who can supply these rubber-studded treads, and I am very positive that once a motor cyclist has tried them he will never use anything else, and his fear of side-slipping will be a thing of the past.

NON-SKID.

Sidecars.

[3059.]—Replying to Mr. J. Haslam's letter in your issue of January 1st, the reason I had not previously accepted his challenge of November 6th is that at that time I was immersed in preparations for the Stanley Show, and since then I have been equally busy with the business arising from the Show, and it is only now that I have time to devote to Mr. Haslam.

The non-skid device alluded to has been in preparation over twelve months. No mention was made of it until recently because it is my practice to prove everything thoroughly before offering it to the public.

No doubt Mr. Haslam belongs to a motor cycle club, and I would suggest that his club officials be asked to take up the matter. Any conditions these gentlemen choose to make will be satisfactory to me. I will agree to meet at any place they decide is suitable. The only stipulation I make is that I be allowed to use my latest pattern sidecar, such as I am offering for sale to the public. This is a progressive age, and a trial with an obsolete pattern would not bring satisfaction to anyone.

W. MONTGOMERY.

Variable Gears for Motor Bicycles.

[3060.]—Not having been present at the discussion following Mr. Van Hooydonk's paper on "Variable Gears," read before the members of the A.C.U., I should like, through the medium of your valuable paper, to make a few comments thereon.

I quite agree with Mr. Van Hooydonk as to the advantages of a gear without end pressure, but cannot coincide with his opinion that an epicyclic gear, with its numerous gear wheels, pins, loss of power on any but the direct drive, and the necessity for a friction clutch, with its admitted defects through wear, etc., is the ideal one for the conditions obtaining on the modern motor bicycle.

The gear to which I am looking forward is that in which the belt with its shock absorbing qualities is retained, the objectionable jockey pulley conspicuous by its absence, absolutely no end pressure, any variation of gear between the maximum and minimum ratios is obtainable, and not merely two or more specific gears. With the gear I have in mind there is no necessity for the art of changing gears, so aptly described by Mr. Van Hooydonk.

The disadvantages mentioned by Mr. Van Hooydonk of a gear when attached to the engine-shaft applies of course to the epicyclic gear, and to render a gear fool-proof there should be no possibility present of shock during the changing of gear. The ideal arrangement would be one in which the gear changes automatically to suit the varying gradients and resistances met with during an average day's run.

Re Mr. Wood's letter on "Two-speed Gears and Free Engine Clutches," in your issue of December 25th, I must take exception to his statement that the "gear almost automatically accommodated itself to the varying gradients, so that the engine was always running at its most efficient speed was absolute proof that the principle was correct."

How is this possible with a two-speed gear? as with the engine running at its most efficient, and, therefore, a constant speed, it is only possible to have two velocities of the road wheel for the same speed of the engine. Also "given an air-cooled engine, properly designed, and a constant speed and load, that engine will never over-heat." The conditions he mentions of a constant speed and load are absolutely impossible on a motor cycle with any but an infinitely variable speed gear, and unless cooled by supplementary means it certainly would over-heat on the lower gears as exemplified by even the water-cooled engine on a car.

DONALD CAMERON.

The A.C.C. Council Meeting.

[3061.]—*Re* letter from Mr. J. H. Hall (3034] in your issue of the 1st inst., I regret to have to trespass on your space on a matter which I would much rather have had threshed out at the next council meeting of the A.C.U. regarding that writer's reference to me. As to the opinion of Mr. Hall whether we are sportsmen or otherwise I do not value it at even a bronze farthing. I leave that to those who are in a position to know, and not to one who has only met me twice, and then under circumstances under which I had entirely to differ from him in my views.

It is not my wish to give proof of what I have done to show that I am a true sportsman, both active and financially, of which Mr. Hall is in entire ignorance, but I believe I was selected by the Hull A.C.C. as its chairman, late secretary, and delegate to the A.C.U. on these grounds, and I might add that my sportsmanship is not confined to motor cycling matters.

Surely, I am allowed to have my own opinion, and express it in the right place, and at the correct time, as I did at the conference and council at Lincoln, and at the last council meeting in London, that some of the propositions (especially the financial ones) were absurd.

When I accused the Reform Committee of being a "racing clique" at the last meeting, it was from information I obtained during the conversation amongst themselves and myself at Lincoln after dinner when dilating on the qualities of our respective machines. Perhaps, it being a post prandial affair, Mr. Hall does not remember. The statement was never proved to be untrue, otherwise I should have done the *amende honorable*. I certainly had it from Mr. Hall (who is neither a member of the A.C.U. nor the M.U., unless he has joined these bodies since the last council meeting) that they were not a racing clique, but his statements alone or mere denial of one of the others is not proof. What about the prizes they have won if they have not raced? As the chairman of the A.C.U. (Mr. Todd) pointed out at the last council meeting, they did what business they did do in a very unbusinesslike manner. If what they have done is a specimen of what is to follow if ever they should handle the ribbons of the Union, all I can say is, "Preserve us," which is endorsed by very many more.

I will now take the opportunity of refuting Mr. Hall's statements. (1) That he ever wrote to our secretary to obtain a view of our club in making the alterations (financial) he so much desires in connection with the A.C.U., or (2) that he ever met our secretary at Bridlington, and had a conversation with him on the same subject. Let me quote him, "Judge not, lest ye shall be judged."

J. A. FOSTER.
Captain (Reserve of Officers).

Another Disappointed Colonial.

[3062.]—I read with much interest the letter signed "Dust Devil" in your issue of October 2nd. He will not, I think, entrust another order to an English manufacturer for a motor cycle. I can quite bear him out in many of his statements as to the fitness of English machines for colonial roads. Although there are some firmly metalled roads in the colony of Victoria, there are many important thoroughfares which are fit for little better than bullock drays to traverse, and over these the motor cyclist of this country has to test the strength of his machine. To my mind the English manufacturer has still a lot to learn from the foreigner. He seems unable yet to design a machine with lightness combined with strength, which is so characteristic of the foreign article.

By far the largest number of motor cycles in Victoria are F.N.'s, Griffons, Peugeots, and N.S.U.'s. Take, for example, the four-cylinder F.N. What English machine can compare with this in design and workmanship? The case hardened steel is infinitely superior to anything I have seen in the way of English manufacture. Every thread and nut fits to a nicety, nothing ever shakes loose on the machine owing no doubt to the delightfully smooth running of the four cylinders. I have had some half-dozen motor cycles in the last four years, including single, double, and four cylinders, but nothing comes up to the four-cylinder for real pleasure and absolute freedom from mechanical trouble.

I have seen many, but never ridden an English-made machine. The look of them is enough for me, and no doubt "Dust Devil" will shake hands with himself if he can sell his latest importation for half of what he gave for it.

In conclusion, I have been a reader of your valuable paper almost from the first number, and on mail days it is the first paper opened amongst a score or so of others.

Victoria, Australia. A COLONIAL RIDER.

[Like "Dust Devil," we think "A Colonial Rider" has been unfortunate. He cannot have seen the latest British productions.—ED.]

EXPERIENCES WANTED.

"L. D. F.," Norwich, would be glad to have readers' experiences of the Osborne four-speed gear, as to wear of belt, and suitability for sidecar work.

A Seven-cylindered Petrol Engine.

ONE of the lightest petrol engines for its power ever constructed is the Esnault-Pelterie, a French engine designed for aerial navigation. In the seven-cylindered engine the cylinders are divided into two groups, one of four and the other of three cylinders. The two groups are assembled on one crank chamber in the form of a fan, one group slightly in advance of the other, and in such a way that if the drawing is examined it will be noticed that the three-cylinder group occupies the spaces left between each pair of cylinders of the four-cylinder group, or, to explain it in another way, the cylinders are staggered round one-half of the crank chamber. This method of construction enables the weight to be greatly reduced, and brings the crankshaft bearings closer together.

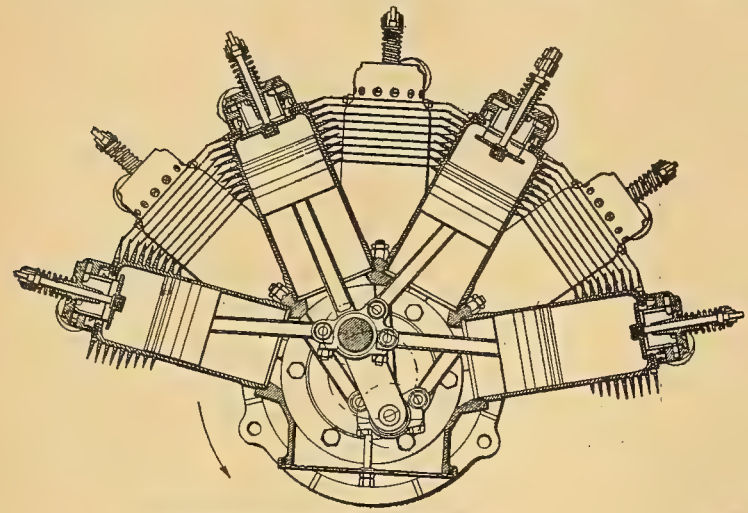


Fig. 1.—Longitudinal view in part section.

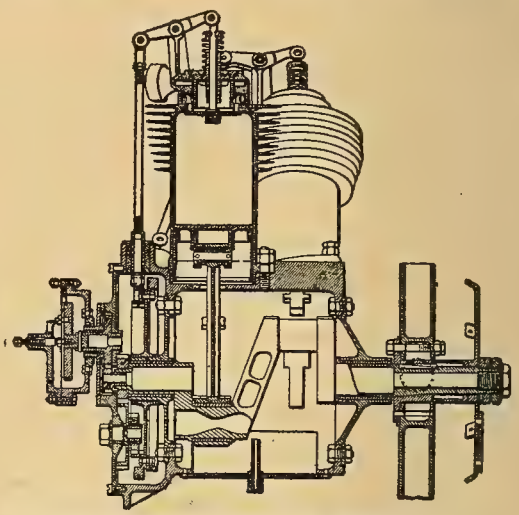


Fig. 2.—Part cross section showing cranks and connecting rods.

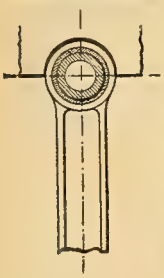


Fig. 3. Method of attachment of connecting rod to piston.

The crankshaft is provided with a double crank at 180°, lightened in every possible direction, so that the total weight of the shaft is only 5½ lbs., and this for an engine which gives 30 b.h.p. The connecting rods are of two kinds. On each crankpin is fixed one connecting rod of the ordinary pattern, the big end being fitted with a large phosphor bronze bearing provided with lugs, to which are pivoted the other connecting rods. The method of attaching the connecting rods to the pistons is shown in figs. 2 and 3.

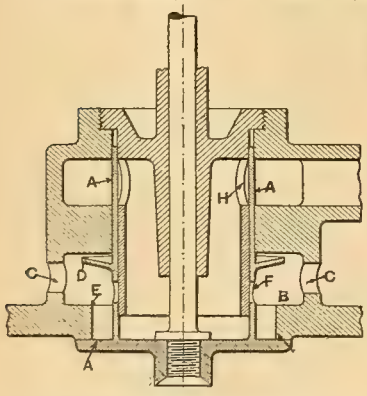


Fig. 4.—The valve arrangement.

At the base of the crank chamber a large square opening is provided covered with a lid. This allows free inspection of the crankshaft and the big ends of the connecting rods. A small tube is placed vertically in the centre of the crank chamber, its height determining the level of the lubricating oil. One of the most interesting features in the engine is the combined inlet and exhaust valve, which is placed on the top of each cylinder. Reference to fig. 4 shows the exhaust slide valve A seated. When the slide valve A is opened, towards the end of the working stroke, it leaves a free passage for the exhaust gases to pass out through the holes B and C directly into the atmosphere. At the end of the exhaust stroke the slide valve A, instead of closing, opens still further, causing the collar D to come to rest against the corner of the angle E, so that air cannot enter *viâ* C and B. When the collar D is at rest the inlet holes F are open, and there is direct communication between the carburetter and the cylinder *viâ* the holes H and F. Each group of cylinders has a separate carburetter, and all the seven valves are operated by one cam wheel. This cam wheel (see fig. 5) has three double cams cut on its face situated at 120° from each other, and is driven six times slower than the crankshaft and in the contrary direction. The tappets are fitted with rollers, which run on the exterior of the cam. The cam wheels are fixed to an internally cut gear wheel, which is driven by a pinion one-quarter the diameter of the cam gear wheel, which is again driven by another pinion on the crankshaft, the train of wheels giving the desired speed, viz., one to six. A timing gear is provided which drives the ignition distributer at half-speed. The engine, which is air cooled, runs normally at 1,200 r.p.m., and develops 30 h.p., the total weight with fittings and propeller being only 130 lbs.

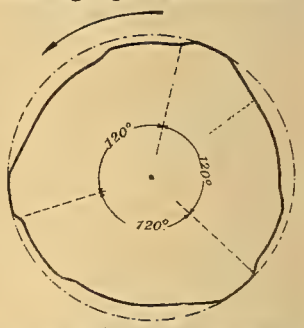


Fig. 5.—One of the valve cams.

VINDEC SPECIAL

THE MOTOR CYCLE OF MERIT.

ITS POPULARITY IS BASED UPON SOLID GROUND—NO ECONOMY IN COST OF MATERIAL, CONSTRUCTION, OR DETAILS—SO LONG AS IT CONTRIBUTES TO THE SAFETY, COMFORT, AND PLEASURE OF THE RIDER. SPONTANEOUS AND UNSOLICITED PRAISE, SUCH AS THE FOLLOWING, JUSTIFIES OUR CLAIM THAT THE "VINDEC SPECIAL" IS TRULY—THE MOTOR CYCLE OF MERIT.

QUOTES A 1908 CUSTOMER:

"I did not select a 'Vindec' without very careful comparison, and it seems to me that yours was easily the best machine in the Show. The small detail fittings, on which so much depends, are so thoroughly honest and substantial."

FULLY·ILLUSTRATED·BOOKLET·SENT·FREE·UPON·REQUEST

SOUTH BRITISH TRADING CO LTD

13 & 15 WILSON ST, FINSBURY. LONDON. E.C.

CHANGE OF NAME.

SIMMS-BOSCH MAGNETOS to be known in the future as BOSCH MAGNETOS.

23, *Store Street, London, W.C.,*

January 15th, 1908.

Dear Sirs,

We beg to inform you that it has been decided to change the name of the celebrated "SIMMS-BOSCH Magneto" to the name of "Bosch Magneto."

At the same time it has been decided to change the name of this Company, and a meeting of the Members of the Company has been called for the purpose of passing a special resolution for the adoption of the name "The Bosch Magneto Company, Limited."

We wish to strongly impress on all our friends that the change is in the name only, and that the same high standard of work will be carefully maintained.

The same trade marks will be used upon the magnetos, but the description will be "Bosch Magnetos" instead of "Simms-Bosch Magnetos," unless special orders are given by any of our friends for the retention of the former title.

We would mention that it is only in England and France that these machines have ever been styled "Simms-Bosch." In all other countries they have always been known as "Bosch Magnetos," and were so named after the inventor and manufacturer.

Requesting you to kindly take note of the change, and assuring you of our prompt attention on all occasions,

We are, Dear Sirs, yours faithfully,

COMPAGNIE DES MAGNETOS SIMMS-BOSCH, LTD.,

J. A. STEVENS, Secretary.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given c/o *The Motor Cycle*, 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

HALIFAX Motor Exchange.—As agents for the Rex Co., we have a few shop-soiled 1907 3½ h.p. singles, £19 19s.; 5 h.p. twins, £23; De Luxes, black and gold, £35; 3½ h.p., magneto, £23; cannot repeat these.

HALIFAX.—Holds the finest and largest stock of second-hand motor cycles in the world. 300 to select from. Proof given.

HALIFAX.—1908 5 h.p. twin Rex, Tourist model, magneto, ball bearing engine; 43 guineas.

HALIFAX. — 1908 35 guinea magneto Rex; liberal exchange allowances; write us quickly; pounds saved.

HALIFAX. — 1908 5 h.p. Rex de Luxe, twin tyre, Roc clutch, and two-speed gear; 55 guineas; liberal exchange.

HALIFAX.—1908 2¾ h.p. Rex, lightweight, Simms-Bosch magneto, magnificent hill-climber; 25 guineas.

HALIFAX.—1908 6 h.p. twin N.S.U., magneto, spring forks, two-speed gear, the essence of luxury; everything on this except the rider; £61 15s.

HALIFAX.—Magneto twin Rex, perfect and unridden, merely shop-soiled, 2¾ tyres, the one and only; £28 10s.

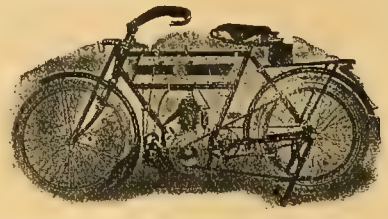
HALIFAX Motor Exchange.—Extended payments; small extra charge.—16, Westgate, Halifax. Telephone, 766. High grade machines purchased for spot cash.

You can't afford

to risk buying in uncertain markets. Far better treat with a reliable agency of standing. We have the largest motor cycle agency and exchange business in the world, and hold the largest stock of new and second-hand machines.

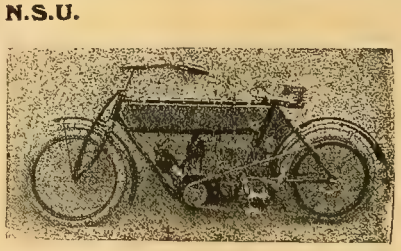
Most of the second-hand machines passing through our hands are offered under a signed certificate testifying to their soundness and fitness. This is a most important innovation inasmuch as the purchaser becomes practically guaranteed from fault or defect precisely as with a new machine. The following is only the pick of this week's stock. There are a great many others. Write for list if you cannot call; 1908 lists now ready.

TRIUMPHS.



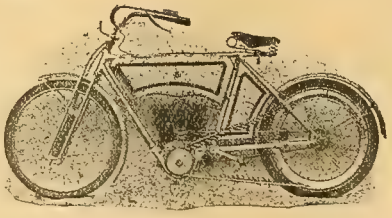
One	3 h.p.	magneto, like new, ..	£30 0
Two	3½ h.p.	„ excellent order	35 0
One	3½ h.p.	„ Roc clutch & gear	40 0

N.S.U.



3	h.p.,	Accumulator Ignition ..	£15 0
3	h.p.,	Magneto	17 10
3½	h.p.,	Magneto, spring fork ..	22 0
3½	h.p.,	Magneto	21 0
4	h.p., Twin,	Magneto	30 0

REX.



3½ h.p.	John-o'-Groat's model ..	£9 10
5 h.p. Twin,	Cantilever seat ..	18 10
5 h.p.	„ Magneto	17 0
Coventry Quadrant,	3½ h.p., 1908, soiled only	35 0

Note the following—(also certificated).

Quadrant, 3½ h.p., 1907	£25.
Brown, 3½ h.p., 1907, as new	£30.
Vindec Special, 3½ h.p., 1907, 2 speed gear	£30.
Roc, 1907, 4 h.p., clutch, hand starting ..	£32.
Rex Litette, 1908, new, soiled only ..	£70.
Riley Tricar, 9 h.p., 3 speeds ..	£52 10s.

ACCUMULATORS. 1908 type, 25 amp. **12/6.** Send for sample. Best value in England.
ELECTRIC HORNS. 1908 type, with press button .. .. **10/6.**
HEADLAMP, separate generator .. .. **18/6.** Do. Searchlight, minature car, powerful magnifying reflecter **30/-**
CLINCHER COVERS, 26 x 2¼, scarcely soiled, to clear at reduced prices.
CONTINENTAL COVERS, 26 x 2¼, scarcely soiled, to clear at reduced prices.

Premier Motor Agency

BIRMINGHAM.

THE WORLD'S MOTOR CYCLE EMPORIUM.

MOTOR BICYCLES FOR SALE.

HALIFAX.—More 1906 Rex twins, special price during January only £19 19s. These will be £22 afterwards. See the astounding records these magnificent machines are making; £15 10s. allowed for any approved 1906 model.

HALIFAX.—Special value. New Year gifts. £2 10s. deposit and six monthly payments of 25s. secures 3½ h.p. Rex, 2 h.p. Minerva (26in. by 2in. Clinchers), 2 h.p. British Standard, 2 h.p. Simms, 3 h.p. Automotor, 2¾ h.p. M.M.C., 2¾ h.p. Excelsior, 2¾ h.p. Antoine, 2¾ h.p. Ormonde, 2¾ h.p. Kerry, and 2 h.p. Humber; all in running order.

HALIFAX.—Thirty twin Rexes, some like new; no complicated speed gears required; reduced price £19 19s. Buy now, to-morrow may be too late.

HALIFAX.—3½ h.p. 1906 Minerva, non-skid to rear, a grand winter's mount; £19 19s.

HALIFAX.—4 h.p. Atelier, 26 by 2½ Dunlops, spring forks, long and low; bargain, £17.

HALIFAX.—4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £18 10s., perfect order.

HALIFAX.—Light low Rex, spring forks, Longuemare, in very good order; £14 17s. 6d.

HALIFAX.—4 h.p. twin-cylinder Werner, 26 by 2½ Michelins, very smart mount; £18.

HALIFAX.—2¾ h.p. F.N., spray, 26in. wheels, vertical engine, very speedy, good condition; £14 10s.

HALIFAX.—3 h.p. Rover, 26 by 2½in. Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, and sidecar; £27 10s.

HALIFAX. — 5 h.p. Rex, Longuemare, trembler coil, Clincher tyres, Fish-back belt; no offers; £17 17s.

HALIFAX. — 1907 3½ h.p. Rex, spring forks, footrests, 2½ tyres, practically new, magneto ignition; £23.

HALIFAX.—3½ h.p. Rex, 22in. frame, vertical engine, trembler, good order; snap this, £11 10s.

HALIFAX.—2 h.p. Minerva, mechanical valves, spray carburetter, magnificent climber; only wants seeing; £8 10s.

HALIFAX. — 3½ h.p. N.S.U., magneto, spring forks; this is marvellous value; £24; new non-skid to rear.

HALIFAX.—1906 2½ h.p. Triumph, vertical, lightweight, trembler coil, fine order and condition; winter price £17 10s.

HALIFAX.—3½ h.p. Rex, spring forks, shop-soiled, accumulator ignition, 1908, black finish, tyres (2½) unscratched.

HALIFAX. — 2¾ h.p. Antoine, spray, trembler coil, accumulator ignition, girder forks; only £10 10s.

HALIFAX.—3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15 15s.

HALIFAX. — 1906 twin Minerva and Montgomery castor wheel sidecar, Duplex steering, fitted with improved Osborne four-speed gear, 26 by 2½ Continentals, almost as new; £31 10s.; buy this and please the missus.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments; small extra charge.—New address, 16, Westgate, Halifax. Telephone, 766. High grade machines purchased for spot cash.

MOTOR BICYCLES FOR SALE.

2¾ h.p. F.N.; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Kerry, F.N., spray; £8 10s.—41, Davenant Road, Upper Holloway, N.

KERRY, 2¼ h.p., new tyres and piston; £12 12s.—Little, 11, Dewhurst Road, Cheshunt.

BARGAIN!—2¾ h.p. Scout, as new; £14. —Nye, Aldhurst, Drewstead Road, Streatham.

5½ h.p. Twin N.S.U., 1906-1907, not done 500 miles, perfect; £35.—Kidman, Hungerford.

£10.—2 h.p. Chater-Precision; seen after 6 by appointment.—Grahame, 96, Wimpole Street, W.

3½ h.p. Bat, spring forks, new machine; £18 18s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. Raleigh Motor Cycle, Fafnir, nearly new; £18.—Coombs, Woodbury Lane, Redland, Bristol.

4 h.p. Twin-cylinder Hamilton, very fast; £13 15s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2½ h.p. Triumph-Jap, in excellent condition, spares and accessories; £15.—Commins, Clewer, Windsor.

ON Sale, 1907 3½ h.p. Triumph, in first-class order; price £35.—46, Cavendish Street, Ashton-under-Lyne.

3 h.p. Triumph, ball bearing engine; £18 18s., great bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

ROYAL Enfield Quad, 2¾ h.p. De Dion engine, two-speed gear; cheap; room wanted; £7.—Sabel, Sidcup.

MINERVA, 2¾ h.p., very long and low, long handle-bars, spring forks; £15. —Roberts, Strathmore, Harrogate.

3 h.p. Magneto Triumph, 1906 model, in condition as new; £25.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin Kerry, spring forks, with Liberty sidecar; £22.—Sames, 10, Newcomen Street, Borough, London.

3½ h.p. Humber, Phelon-Moore two-speed, with Liberty sidecar, perfect; £23.—Morris, Peters Street, Derby.

3 h.p. N.S.U., magneto, complete accessories, new August, perfect; £25 10s.—X.Z., 14, Kepple Street, South Shields.

3 h.p. Chase, De Cart engine; lowest price £15 15s.; Chater-Lea fittings throughout.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

ROVER Motor Cycle, 3½ h.p., first-class condition, with Trimo and chair; price £26.—Burridge, 32, High Street, Watford, Herts.

3 h.p. Ariel, in particularly good condition; £10 10s., splendid cash bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

LIVERPUDLIANS! — Call at 74, Bold Street, and see latest models of Triumph and Roc motors.—Hitchings are the sole agents.

BARGAIN.—1¾ h.p. Excelsior, M.M.C., surface, good tyres, stand, registration; £6 10s., offers. — 72, Warwick Street, Middlesbrough.

FOUR-CYLINDER F.N., just to hand, 1907 model, in excellent condition; £25, lowest.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

TWIN Rex, holder of unbeaten record, Leeds to London and back, proof given, time schedule, registration; £21. —16, Westgate, Halifax.

ARIEL Lightweight, 2½ h.p., Simms-Bosch magneto, condition as new, very little used; £25, a bargain. — 70, Church Street, Preston, Lancs.

3 h.p. R. and P., vertical, Longuemare, trembler, 26in. by 2¼in. Clippers, fast and low; £10 10s., or good push cycle part.—Pollard, Wragby, Lincs.

3 h.p. Singer Motor Cycle, magneto ignition, in first-class condition throughout; offers.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

1908 MODELS.

QUADRANTS, MINERVAS, TRIUMPHS, ROCS, all makes supplied, and prices are right.

Cash, Credit, or Exchange. The World's Motor Cycle Mart. Shop-soiled Machines.

3½ h.p. QUADRANT (1908), magneto.	
5½ h.p. REX DE LUXE, magneto, Roc clutch	£32 10
3½ h.p. QUADRANT (1907), spring forks	25 10
3½ h.p. REX (1907), spring forks, spotless	19 0
3½ h.p. REX (1907), spring forks, 2¼ tyres	19 19
4½ h.p. TWIN MINERVA (1907), spring forks	30 0
3½ h.p. MINERVA (1907), spring forks ..	25 10
3½ h.p. TRIUMPH, magneto, two speeds	36 0

These are all Ready for the Road.

3½ h.p. BROWN, magneto, classic	£22 10
3½ h.p. N.S.U. (1906), magneto, a picture	22 10
Four-cylinder F.N., magneto, spring forks	22 10
5 h.p. TWIN KERRY, Triumph finish	22 10
4 h.p. STEVENS, low built, Bat pat. ..	14 14
3 h.p. RALEIGH, two speeds, low	12 12
3½ h.p. REX, magneto, spring forks	18 18
6 hp. TWIN REX, spring forks, smart	19 19
5 h.p. REX, spring forks, powerful	16 16
6 h.p. TWIN REX, shop-soiled, spring forks	22 10
6 h.p. TWIN REX, shop-soiled, 2¼ tyres	23 10
3½ h.p. REX (1906), spring forks	15 15
3½ h.p. REX (1906), spring forks, 2¼ tyres	16 0
3½ h.p. REX, light and low, 26in. wheels	11 11
3¼ h.p. REX, John-o'-Groat's model	9 10
3½ h.p. REX, spring forks, 26in. wheels ..	12 12
2¼ h.p. REX, vertical engine, smart	7 15
3 h.p. HUMBER, very powerful, smart	10 10
3½ h.p. STANDARD, vertical engine, good	7 10
3½ h.p. AUTOMOTOR, vertical engine ..	10 10
3½ h.p. WHITELEY, spray, good order..	8 10
3½ h.p. RILEY, spray, climbs anything ..	10 0
3½ h.p. QUADRANT (1907), spring forks	25 10
2½ h.p. DE DION, spray, good order	8 10
2½ h.p. DE DION complete, less tank ..	6 18
2½ h.p. SPARK, magneto, low built	10 0
2½ h.p PROGRESS, magneto, vertical engine	9 10
2 h.p. CLYDE, vertical engine, magneto	8 10
3½ h.p. COVENTRY EAGLE, reliable ..	9 10
2¾ h.p. ARIEL MINERVA, low built, smart	11 10
3 h.p. ARIEL, vertical engine, low	10 10
3 h.p. CLARENDON, ball bearing pulley	10 10
3½ h.p. CENTAUR, low built, 26in. wheels	12 12
2¾ h.p. MINERVA, spray, fast machine ..	8 10
3 h.p. HOBART, vertical engine, extra..	9 10
2¾ h.p. DE DION WERNER, low built ..	10 10
3½ h.p. KOH-I-NOOR, low built, smart ..	12 12

LIGHTWEIGHTS.—The following machines will climb all ordinary hills, extraordinary hills with slight assistance, and will attain 30 miles per hour on level :

1¾ h.p. MINERVA good tyres, V belt	£4 15
1¾ h.p. QUADRANT, very reliable, handy	5 15
2 h.p. MINERVA, M.O.V., spray, smart..	7 10
2 h.p. LIBERTY, vertical engine, reliable	6 10
2¼ h.p. CENTAUR, very smart appearance	7 10
2¾ h.p. ORMONDE, Antoine engine, smart	7 10
2¾ h.p. VINCO, vertical engine, smart....	6 15

Push cycles taken in part payment. Cash offers wanted.

MILLS-FULFORD SIDECAR, 26in. wheel	£4 18
TRAILER, a pretty thing, good tyres ..	1 15
FORECARRIAGE, coach built	5 15

TRICARS.

4 h.p. TRENT, w.c., open frame, wheel steering, 2 speeds, bucket seats	£25 0
10 h.p. TWIN REXETTE, open frame..	42 10
6 h.p. QUADRANT CARETTE, open frame	35 0
6 h.p. TRIETTE, four speeds, magneto	32 10
5½ h.p. REXETTE, open frame, 2 speeds	27 10

Continental Tyres.	Cover.	Tube.	Continental Tyres.	Cover.	Tube.
26×2	24/-	9/6	28×2	25/-	10/-
26×2¼	25/6	10/-	28×2¼	27/3	10/6
26×2½	29/6	11/-	28×2½	29/9	11/3

Fully guaranteed by makers. Supplied either in beaded or wired edges. Delivery per return. Your old cover or tube taken in part payment. Liberal allowance.

BOOTH'S BELTING.

Made from selected parts of hides. Correct angle, non-stretching, long life, perfect drive. Sample belt on approval on receipt of remittance.

½in. 9d., ¾in. 10½d., ⅞in. 1/-, 1in. 1/1.

Special terms to the Trade.

Liberal allowance for your old belt.

High-class Motor Cycles wanted for cash.

H. BOOTH Coronet Works WADE ST., **HALIFAX**

TELEPHONE 198Y.

MOTOR BICYCLES FOR SALE.

2¾ h.p. De Dion, Chater-Lea, medium weight, fast and powerful, good condition; £14. — H. Pixton, 28, Barlow Moor Road, Didsbury, Manchester.

3½ h.p. Quadrant, spring forks, vertical engine, slightly soiled, otherwise as new; price £21, lowest.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. Chater-Lea, Humber engine, very low, new tyres and belt, do 40, pull sidecar anywhere; £15.—Wyatt, 11, Neal Street, Long Acre, London, W.C.

3 h.p. Fafnir, low, fast, spring forks, Greenwood pulley, footrests, foot brake, new Whittle's belt, Price's stand, perfect; £16.—R. Ross, Tayavalla, Falkirk.

2½ h.p. Durkopp, spring forks, trembler, spray carburetter, good condition, only 10 guineas; also 3½ h.p. ditto, £14.—11, Avenue Road, Goldhawk Road, W.

6 h.p. Twin-cylinder Jap-Ariel, low frame, 26 by 2¼ wheels, has seen but little use; £28; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

HULBERT-BRAMLEY Motor Cycle, 2¾ h.p. Minerva engine, low frame, wheels 26 by 2, perfect order.—Hulbert-Bramley Motor Co., 96, Upper Richmond Road, Putney.

3 h.p. Humber, twin accumulators, B100 saddle, spring pillar, automatic carburetter, handle-bar control, Dunlops, stand-carrier, new condition; £15.—Cowcher, Ebley, Glos.

TRIUMPHS. — For immediate delivery of latest models write to the Liverpool and District agents, Hitchings, Ltd., 74, Bold Street, also sole agents for Roc motors and gears.

6 h.p. Twin Antoine, Chater No. 6 frame, Longuemare, footboards, foot brake, low, fast, spares, £24; sidecar for above, £4; appointment. — 54, Hunter Street, Russell Square, W.C.

ROC.—Hitchings, Ltd., are sole agents in Liverpool and district for Roc motors and patent gears. Write to 74, Bold Street. Immediate delivery given of latest model Triumphs.

5½ h.p. N.S.U., cost £60, many spares, condition equal to new, back seat for passenger; too powerful for owner; £25 cash; magneto. — Dallaway, Cape Hill, Smethwick, Birmingham.

TRIUMPH, 3½ h.p., magneto, 1907, as advertised, plus many spares, used but little, guaranteed, complete with trailer; £36 cash; seen any time.—Alfred Huxtable, 4, Maple Road, Surbiton.

NEW 6 h.p. J.A.P. Engine Motor Cycle, Chater No. 6 frame, Longuemare carburetter, Simms-Bosch magneto.—Apply, Hulbert-Bramley Motor Co., 96, Upper Richmond Road, Putney. 'Phone 424, Battersea.

3½ h.p. Rex, 26 wheels, new Pullman steel-studded tyre on back wheel, Bates band on front; this is a real bargain; only wants seeing; £11 10s. for quick sale; owner giving up riding.—12, South Side, Clapham Common.

EDINBURGH. — Alexander's Motor Exchange, 110, Lothian Road; the largest variety and stock of motor cycles in Scotland; agents for Quadrant, Griffon, Rex, N.S.U., Adler, Roc, Minerva, Vindec, and Bercley motors; repairs, spare parts; exchanges, easy payments.

MINERVA and Rex. — We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

5-6 h.p. Twin Vindec Special, magneto, Truffault, Brown-Barlow carburetter, Shamrock-Gloria non-skid back, long footboards, extra Rich tube, Autoclipse lamp, separate generator, carrier, stand, spares, tools, ridden 1,700 miles, very fast, powerful, perfect condition; cost over £60, price, including £35 combined insurance policy, expiring 27th August next, £31; no exchange.—Motor, 9, Swinley Road, Wigan.

MOTOR BICYCLES FOR SALE.

3½ h.p. N.S.U.; £18 18s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Brown, in good condition, spray, Longuemare; £6 10s. — 1, Bower Mount, Maidstone.

5 h.p. Vindec Special, 1907, garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

MINERVA, 2½ h.p., Palmers, nearly new, good condition; £8 10s.—6, Islip Street, Kentish Town, N.W.

3½ h.p. M.M.C., vertical engine; £12 10s. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

£10 15s., or offer.—2¾ h.p. F.N., reliable, low, and fast; trial by appointment.—26, Court Road, West Norwood, S.E.

3½ h.p. Minerva; £15; very reliable machine.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

N.S.U., 3¾ h.p., magneto, 1908, unused; seen London; best offer accepted. —8,904, *The Motor Cycle* Offices, Coventry.

2½ h.p. Triumph Motor Cycle, light model; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

£11.—2 h.p. Humber, low, long bars, trembler coil, Longuemare carburetter, splendid condition.—Pearse, Plain, Bristol.

5 h.p. Vindec Special, Truffault, very fast machine; £27 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

4 h.p. Antoine, magneto, lowest Chater-Lea frame, almost new, perfect; accept £28.—Templeton, 535, Sauchiehall Street, Glasgow.

3½ h.p. No. 1 Ariel Motor Cycle, in new condition; £15; new arrival. —Wauchope's, 9, Shoe Lane, Fleet Street, London.

AS New, genuine Chater-Lea 6 h.p. twin motor cycle and sidecar, magneto, spring forks, latest design; £26.—J. Ruby, 169, Mayall Road, Brixton.

3½ h.p. Spring Frame Bat, new machine; £25; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. Ormonde, just overhauled, absolutely ready for the road, very fast, climb any hill, low frame; £8 10s.—Hamplin, 380, Woodbridge Road, Ipswich.

2¾ h.p. Vindec Special, F.N. engine, very reliable; £14 10s. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

GENUINE Bargain.—5-6 h.p. twin Rex, cantilever, Watawata, tyres excellent, insides unpunctured; only £15 10s.—L. Bone, Llanrhos, Llandudno.

3½ h.p. Minerva, 1907, standard model, only once used; 20 guineas.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. Kelecom, new condition, Bassee-Michel coil, Peto-Radford accumulator, spring saddle and handle-bar; price £14.—A.J.R., 433, Cold Harbour Lane, Brixton.

7 h.p. Peugeot, in No. 6 Chater-Lea frame; £18 10s.; opportunity.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

LATEST 3½ h.p. Beeston Humber, magnificent machine, equal to new, everything perfect and sound; absolute bargain, £11 11s.—Motorist, 86, Colvestone Crescent, Dalston, London.

IF You Want Bargains in second-hand motor cycles, you can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London.

£12 12s.—Kerry, 2¾ h.p., in splendid condition, long bars, low seat, Clinchers, 30 amp. accumulator, Dermatine belt, stand and carrier, lamp, two good brakes, spares, fast, and good climber; expert examination; buying tricar; bargain, £12 12s., no offers.—Booklass, 3, The Avenue, Acre Lane, Brixton.

2 h.p. De Dion-New Hudson, vertical engine, excellent condition; £9 9s.; lightweight motor cycle.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

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Some articles are like the pups that fellows sell at street corners—they don't always turn out as represented, and some articles bought from strangers turn out equally unreliable. You avoid all risks by dealing with me.

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HAVE YOU A SIDECAR TO SELL? WRITE ME.

DO YOU WANT A 1908 MACHINE OF ANY MAKE?

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	£	s.	d.
1907 TWIN N.S.U., magneto, two speeds, 26 × 2¼ tyres, green finish	35	0	0
3 h.p. **QUADRANT**, spring forks	12	0	0
2¾ h.p. **WERNER**, vertical and low	10	0	0
3½ h.p. **DUX**, M.O.V., spray	12	0	0
3½ h.p. Tricar, **PHŒNIX**, two-speed gear, 1907 Quadrant engine	19	0	0
5½ h.p **REXETTE**, two speeds	29	0	0
PHŒNIX Forecarriage, 26in. wheels	4	10	0
5 h.p. Twin cylinder **RUNABOUT**, wheel steering	12	0	0
3 h.p. **NOBLE**, vertical, M.O.V.	10	0	0
3 h.p. **REX**, good goer	9	0	0
2¾ h.p. **R. & PRICE**, 26in. wheels	10	0	0
TWIN N.S.U., two speeds, magneto, 24 × 2½ tyres	34	0	0
5½ h.p. **REX DE LUXE**, Roc clutch, magneto	29	0	0
3½ h.p. **REX**, 1907 spring forks, 2½in. tyres	18	0	0
5½ h.p. **TWIN REX**, 1907, spring forks, footboards	22	0	0
4½ h.p. **TWIN MINERVA**, 1907, brand new	31	0	0
3 h.p. **N.S.U.**, has won Leeds Hill Climb	16	0	0
4 h.p. **KELECOM**, 26 × 2¼in. tyres	16	0	0
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3 h.p. **KING**, vertical, spray	10	0	0
3 h.p. **BRADBURY**, new Dunlops	11	0	0
3½ h.p. 1905 **REX**, 24in. frame	12	0	0
3½ h.p. 1904 **REX**, 22in. frame	9	0	0

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Free belt fastener to all offers I decline.

£10	1½ h.p. **CLEMENT-GARRARD**, two speeds, weighs under 60 lbs.	10	0	0
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£7	2½ h.p. **HUMBER**, fine goer	7	0	0
£6	2 h.p. **QUADRANT**, grand machine	6	0	0
£7	2½ h.p. **ORMONDE**, spray carburetter	7	0	0
£7	3½ h.p. **AUTOMOTOR**, spray, vertical engine	7	0	0
£4	10 2 h.p. **KING**, spray carburetter	4	10	0
	Pair X.L. All Spring Forks	0	10	0
	Four-speed Gear for belt drive	1	10	0
	B100 Saddle	0	12	6
	Dunhill's Speedometers	0	6	6
	3 h.p. Quadrant Engine	3	0	0
	3½ h.p. 1907 Quadrant Engine, new	4	10	0
	4½ h.p. New Orleans Engine	5	0	0
	3 h.p. Automotor Engine	2	19	0
	Tricar Frame, with wheels and tyres	6	10	0
	Tricar Frame, no wheels or tyres, open type for wheel steering	4	10	0
	Drummond Lathe, treadle, new nine weeks ago	12	10	0

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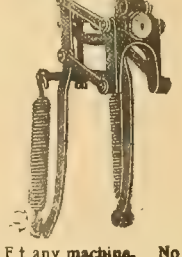

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FIRM. RIGID. STRONG.

For either 24in., 26in., or 28in. wheels.

Note the price—

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HIGH-CLASS MOTOR CYCLES WANTED FOR CASH. MONEY WAITING.

I have bought Seven Tons of Quadrant Engines and Parts. Send your requirements.

E. FARRAR, Albion Works, Square Road, **HALIFAX**

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GENUINE Clement - Garrard 1½ h.p. Lightweight, tank in frame, Clincher tyres, perfect condition, £7; or sell engine and all fittings complete, £4. —13, St. Nicholas Street, Coventry.

4½ h.p. Four-cylinder F.N., in perfect condition, used carefully; a splendid bargain, £28.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

GENUINE 2¾-3 h.p. Brown throughout, Palmer back, non-skid, Longuemare, acetylene headlight, a very fast and reliable mount; £12 10s. 6d.—W.B., jun., 10, Clifton Road, Asylum Road, Peckham, S.E.

3½ h.p. N.S.U., in very good condition, for second-hand machine; price £15. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Clyde, magneto, spring forks, and saddle-pillar, Brooks B100, two pulleys, three belts, Watawatas, and Whittle, spares costing £3, £14; also Osborne four-speed gear, £3.—Rev. Cooper, Barnet.

4 h.p. Roc, free engine clutch, Stevens engine; 20 guineas; magneto ignition.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

BRAND New 1907 3½ h.p. Minerva, magneto, spring forks, every refinement, absolutely perfect in every detail, only done 10 miles; reasonable offer accepted. — Motorist, 5, New Norfolk Street, Shoreditch, London.

6 h.p. Twin-cylinder Antoine Motor Cycle, very powerful; offers.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Phœnix, 1906, two-speed gear, footboards, fan-cooled, spring forks, as new, has not been ridden 1,500 miles; £14; must be sold at once; guaranteed perfect.—Hurlock, jun., 70, Walworth Road, London. Seen any time.

2 h.p. Minerva, M.O.V., round tank, B.S.A. fittings; £6 10s.; good light runabout. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

2 h.p. Motor Cycle, spray carburetter, belt drive, Bowden brake, trembler coil, etc., less tyres, £4, or best offer, must sell; also one A Won cover, B.E., 26in. by 2in., 13s. 6d., too cheap for approval. — Maisted, 12, Denmark Street, Rochdale.

4 h.p. M.M.C.-Enfield Motor Cycle, spring front forks, vertical engine, very powerful and fast; £15, good reliable bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. Bell (3½ h.p. Quadrant engine), low, light, and very fast, magneto, built by L. W. Bellenger in September, 1907, carrier, stand, horn, lamp, tools, and toolbag; £30; owner buying tricar.—Full particulars, apply, B., 78, Avenue Road, Regent's Park, N.W.

3 h.p. Fafnir, in Bat pattern frame, Chater-Lea fittings, engine recently overhauled; £12 10s., great bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MOTOR Expert, with exceptional opportunities for the purchase of second-hand motor cycles and tricars of recent patterns, solicits enquiries from intending purchasers; list of available machines sent free; no fees.—Greville, 253, Slade Road, Gravelly Hill, Birmingham.

3½ h.p. Triumph Motor Cycle, in condition as new, 1907 model, magneto; £35; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

1906 3½ h.p. Brown, small pulley, climbs mountains, runs over hills, new Lycetts belt, two accumulators, tap for injecting paraffin, done good work, perfect condition, but wants enamelling and plating, having been used in all weather, splendid machine for one wanting no worry; inspection invited; tyres good; £18 15s.—Dr. Davies, Cwmavon, Port Talbot.

3½ h.p. Phœnix Motor Cycle, with Phœnix two-speed gear, low frame, Minerva engine, in splendid order, and very powerful; £23. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

MOTOR BICYCLES FOR SALE,

THE Famous Griffon Motor Cycles.—Write for 1908 illustrated catalogue, 17, Vant Road, Tooting.

3 h.p. 1906 N.S.U., magneto, only ridden 1,960 miles, just overhauled by makers, new Continental tyres, complete, Model de Course back, Gloria belt, and accessories; £19 15s., or exchange good make featherweight, magneto.—D.E., 46, Cromford Road, Wandsworth, S.W.

4 h.p. Roc, magneto ignition, latest 1908 model, not used more than two or three times, fitted with two-speed gear and free engine clutch, starting handle, etc., in condition just as come from the works; price £35; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

1907 Quadrant, genuine 3½ h.p., bought September, run about 200 miles, perfect, spring forks, Clinchers, low built, £3 worth accessories, £27; also N.S.U., 1906 model, magneto, 3½ h.p., very low, 24 by 2¼ tyres, complete spares, Wright's footrests, excellent climber, £20.—Campbell, cabinet maker, Leemount Road, Halifax.

SPECIAL Clearance Lines.—1¾ h.p. Excelsior-Minerva, £4 17s. 6d.; 2 h.p. Minerva, £6 10s.; 2 h.p. Minerva, £6 10s.; 2¾ h.p. Excelsior, £8 10s.; 1¾ h.p. Excelsior-Minerva, £5 15s.; 3½ h.p. Aster engine motor cycle, £8 10s.; 3 h.p. Calvert, £5; 2 h.p. Daw, £4; 3½ h.p. London, £10 10s.; 2½ h.p. Minerva, £8 10s.; 3 h.p. Ariel, £10 10s.; 2¼ h.p. 1905 Roc, £10 10s.; 2¾ h.p. Minerva, £10 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

8 h.p. Dene Motor Cycle, fitted with Buchet two-cylinder engine, Bozier two-speed gear, chain drive, spring forks, 26 by 2½in. Peter-Union studded cover on back, heavy Le Persian on front, Brooks B100 saddle, heavy Bowden brake on back wheel, band brake, also foot operated, low built, in splendid condition, been little used; too powerful; also Montgomery sidecar; accept £37 10s., the lowest.—Moore, 26, Forsyth Road, Newcastle-on-Tyne.

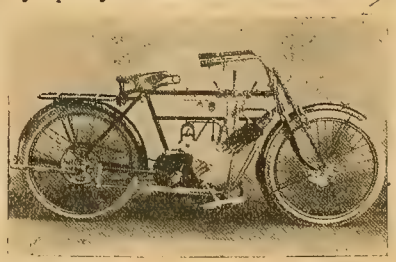
6 h.p. Twin-cylinder Bat, spring frame and forks, Jap engine, Jap automatic lubricator, Jebron contacts, special metal-to-metal brakes, Peter-Union studded tyres to both wheels, back tube filled Miraculum, Autoclipse lamp, separate generator, new 1in. Dermatine belt, new 1in. Giant Watawata, new Fuller coil, and two accumulators, with full kit of tools and spares, done under 2,000 miles; any examination; owner bought car; price 35 guineas.—Humphreys, 6, Comberton Terrace, Kidderminster.

TWO 3½ h.p. White and Poppe, free engine, Chater-Lea fittings, Palmer corded tyres, accumulator and coils, complete, practically new, guaranteed, quick sale £15 each to clear; 1¾ h.p. Derby, in running order, £4 to clear; four Chater-Lea girder heads, complete, 15s. each; two pairs Chater-Lea wheels, 28 by 2¼, with belt rim and brake drums, £1 per pair; two Palmer corded covers, 28 by 2½, one Clincher tyre, complete, 28 by 2¼, shop-soiled, 15s. each; one Parsons non-skid, 815 by 105 (new), £1.—Apply, Bateman, 17, Thrale Road, Streatham.

GET Ready Now.—1¾ h.p. Minerva, £5; 2 h.p. Minerva, £7; 2 h.p. Quadrant, £8; 2 h.p. Standard, £8; 2 h.p. Werner, £5; 2½ h.p. Kerry, £9; 2¾ h.p. Antoine, £9 10s.; 2 h.p. magneto Simms, £9; 3 h.p. Hobart, £10; 3 h.p. Rover, £13 10s.; 3½ h.p. Rex, £9 10s.; 2½ h.p. Aurora, £12; spring fork Rex, £14 10s.; 5 h.p. Rex, £18; 3½ h.p. Kerry, £18 10s.; 2¾ h.p. F.N., £14 10s.; 2¾ h.p. De Dion, £14 10s.; 3½ h.p. N.S.U., magneto, spring forks, £24; 2½ h.p. Triumph, £15; Rex de Luxe, best offer; 4 h.p. Atelier, £16; twin Werner, £16; 4 h.p. Waddington, £16; twin N.S.U., £25; 3 h.p. M.M.C., £13; 3 h.p. Humber, £11 10s.; 3½ h.p. Minerva, £18 10s.; twin Berkley, £21; 3 h.p. Automotor, £10 10s.; 3½ h.p. magneto Rex; 2 h.p. Humber; twin Alcyon, £22; 4 h.p. Antoine; 1¾ h.p. Minerva, £4 10s.; 1¾ h.p. Quadrant, £5; 3 h.p. Lloyds, £14 10s.; 2¾ h.p. Excelsior, £6; 4 h.p. Buchet, £14 10s.; 4 h.p. Coronet, £16; cash, exchange, or extended payments.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

New Motor Cycles for Old.

The balance in Cash or by Extended Payments. All arrangements are carried out quite privately, and we can confidently guarantee you satisfaction **if you place your business in our hands.**



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Our contracts enable us to give good deliveries of **Roc, Triumph, Phelon and Moore, Motor-Reve, F.N., Rex, G.B., Vindec, Ariel, N.S.U., Minerva, Motosacoche, Brown,** etc., each machine carrying with it the manufacturers' full guarantee.

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14	h.p. POPE TRIBUNE CAR, side entrance, seat five, powerful hill-climber, shop-soiled only, exchange and easy payments arranged	£180	0
14	h.p. POPE TRIBUNE CHASSIS, new, suitable for cab or side entrance body	120	0
10	h.p. MINERVA, tonneau body, two cylinders, governed engine, fine light touring car, shop-soiled, exchange and easy payments arranged	150	0
8	h.p. REGAL, M.M.C. engine, Cape hood, non-skids, four-seater, exchange and easy payments arranged	90	0
6	h.p. WOLSELEY, two seats, very reliable, exchange and easy payments arranged	65	0
9	h.p. RILEY TRICAR, three speeds	55	0
4½	h.p. ROVER, coach-built, two speeds	43	0
4½	h.p. BAT, water-cooled, two speeds	35	0
8	h.p. REXETTE, seat three, two speeds, water-cooled	35	0
3½	h.p. REX MOTOR CYCLE, 1907 model, hardly used, extra accumulator case	17	17
4	h.p. SERVICE, magneto ignition, 1907 model, free-engine clutch	21	0
3½	h.p. TRIUMPH, magneto, 1907, soiled	37	0
3½	h.p. TRIUMPH, magneto, 1907, good condition	30	0
3¼	h.p. DURKOPP, new, magneto, very reliable	35	0

And many others from £7.

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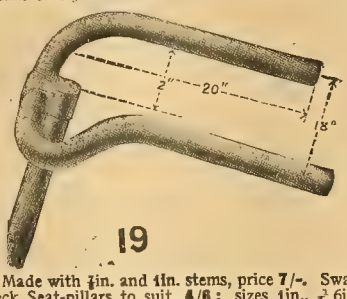
SIMMS-BOSCH MAGNETOS for two-cylinder motors, type D2, usual price £13 15 0, to clear **£9 17 6.**

We have only a limited number to offer, every one fully tested. Suitable for two-cylinder tricars or cars.

LONG HANDLE-BARS.—For winter riding and greasy roads, Long Handle-bars and a Low Seat means safety.



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Made with ⅞in. and 1in. stems, price **7/-.** Swan-neck Seat-pillars to suit, **4/6**; sizes 1in., 6in., and 1⅛in. stems. Other sizes to order. Immediate delivery of stock sizes.

FOOT BRAKES.—Chapman's, quickly fitted, worked by heel, **8/9**; plated **10/6**; actuated by lever at crank case, from **14/9.** Chase back-pedalling belt rim brake, plated **16/6.** Bowden brakes stocked, any part supplied.

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1907 Vindec Special, Truffault suspension, guaranteed perfect condition throughout, special extra air valve, Brooks B105 (padded), adjustable pulley, tools, spares, including cover, tube; £35 cash.—Edmonds, Heavitree, Exeter.

ROC, 3½-4 h.p., free engine, magneto, very fast; best cash offer accepted, or will exchange same with cash if necessary for 3 or 3½ h.p. Triumph, or 3½ h.p. Brown, accumulator ignition not objected to; must be in good condition.—Davies, 72, Maybury Street, Tooting.

TRICARS FOR SALE,

HALIFAX.—4½ h.p. water-cooled Wolf, two speeds, handle starting; £37 10s.—Below.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built, four-speed gear; £37 10s.

HALIFAX.—5½ h.p. Rexette, two speeds, spring frame, car tyres, in perfect order; £37 10s., bargain.

HALIFAX.—6 h.p. twin-cylinder Advance tricar, wheel steering, only used for trials; bucket seat; £35.

HALIFAX.—5½ h.p. Rex Triette, spring frame, free engine clutch, very reliable; £29 10s.—Below.

HALIFAX. — 1906 6½ h.p. twin-cylinder Clyde, water-cooled, sprung open frame, Stevens engine, two speeds, wheel steering, almost equal to new; £42.

HALIFAX.—6 h.p. twin Antoine tricar, a real gem, open frame, three speeds, wheel steering, chain drive, foot clutch; £39 10s.

HALIFAX.—8 h.p. twin-cylinder Rexette, carry three (1906), fine condition, excellent climber, non-skid to rear, a top gear car; £42 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

TRICAR, 3½ h.p., two-speed, tyres good; £15 10s.—A., 8, Herndon Road, Wandsworth.

FARRAR.—5½ h.p. Rexette, chain drive, open frame, wheel steering, two speeds; £29.—Below.

FARRAR.—3½ h.p. Minerva tricar, vertical engine, M.O.V., fan-cooled, Longuemare carburetter; £18 10s.—Farrar, Square Road, Halifax.

5 h.p. Motette, three-wheeler, two bucket seats, three speeds; £15, or twin bike.—Write, 98, Potternewton Lane, Leeds.

3½ h.p. Humber Tricar, handle starting, clutch, perfect; trial; bargain. £17.—1, Shaftesbury Avenue, Roundhay, Leeds.

5 h.p. Twin, W.C., open frame, wheel steering, coach built, two speeds; £34; would allow £10 for small motor cycle.—Kingston, Ashover, Long Ashton, Bristol.

3½ h.p. Chater-Lea Tricar, with Lloyd engine, chain drive, with clutch, tyres, perfect, exceptional hill-climber; offers; must sell this week.—Motor, White Hart, Willesden.

STAMFORD HILL.—2¾ h.p. M.M.C. light tricar, £9 17s. 6d.; 3½ h.p. Royal Sovereign ditto, £11 10s.; 3½ h.p. Rex ditto, £15; all in perfect order; call and have trial.—128, High Road, Tottenham.

STAMFORD HILL.—5 h.p. Excelsior, water-cooled, Oppermann three speeds, climb anything; bargain, £29 10s.

STAMFORD HILL.—3½ h.p. Fafnir, Osborne four speeds, £29; 4 h.p. Phœnix Trimo, Fitall two speeds, £26 10s.; exchanges; come and have trial run.—128, High Road, Tottenham. We buy, sell, and exchange.

PHŒNIX, 4½ h.p., air-cooled, coach-built, two-speed, free engine, chain drive, Longuemare carburetter, non-skid, two Rich's tubes, etc.; £30; bought car.—B., 31, Clapham Mansions, Clapham Common, S.W.

RALEIGHETTE, 3½ h.p., water-cooled, extra wide forecar, complete, new tyres, two speeds, in splendid running condition; accept £35 if sold at once.—Apply, C.G., c/o Mitchell's Garage, 110, Radford Road, Nottingham.

TRICARS FOR SALE.

ROVER, 3½ h.p., perfect order, many spares; genuine bargain, £18.—Trott, 58, Peak Hill, Sydenham.

TRIUMPH Tricar, water-cooled, lamps, all accessories and spares; £25.—Day, 39, Pellatt Grove, Wood Green.

COACH-BUILT Water-cooled two-speed tricar; cost £100, sacrifice £29, as new.—24, Dalmeny Road, Tufnell Park, N.

PHŒNIX-MINERVA 3½-4½ h.p. Tricar, two speeds, coach-built, footboards; £23 10s., offers.—41, Skelbrook Street, Wandsworth.

N.S.U. Tricar, 6 h.p., two speeds, free engine, magneto, perfect condition, new three months ago; lowest £55.—Apply, Campbell, Woodlands Villa, Darlington.

3½ h.p. Humber Engine Tricar, coach-built, two acetylene lamps, new Palmer cord tyre to back wheel, two accumulators, horn, and accessories; £15.—Lacey, High Street, Staines.

4¼ h.p. Phœnix Trimo, chain drive, magneto, two-speed, fan-cooled, coach-built forecar, excellent tyres, tools; bargain, £27 10s.—Calf, 127, Haydon's Park Road, Wimbledon.

BEESTON Humber, 4½ h.p., water-cooled, two speeds, coach-built, new condition, non-skid, new spare tyres, finest accessories; exceptional bargain; £45.—Randall, Clone, Hampton-on-Thames.

10-12 h.p. Two-cylinder Rexette, new September, cost £135, seats three, upholstered red morocco, silver-plated fittings, silent, very powerful, unscratched, perfect, guaranteed, complete; £58; bought car.—68, Cathles Road, Balham.

WATER-COOLED Tricar, 5 h.p. Stevens single-cylinder, Chater-Lea's versible wheel steering, three speeds and reverse, bucket seats, open frame, 2½in. tyres, all splendid condition, with spares; £55, or offer.—Fear, Feltham, Middlesex, or exchange for small car.

CHATER-LEA, 4½ h.p. Stevens water-cooled engine, wheel steering, two-speed, fast, large tyres, non-skid; £35; 6½ h.p. Gladiator car, four-seater, three speeds, reverse, good order, take good motor cycle part exchange either.—Adams, St. Johns, Woodbridge

QUADRANT Carette, excellent condition, 6 h.p., fast, and good climber, back tyre almost new, front tyres absolutely new, two unused complete spare tyres, 26 by 2½, two used covers also, tools and spares, voltmeter, indicator, pump, side lamps, two accumulators, horn, etc.; £45 cash.—Dr. McNeil, Garstang, Lancashire.

SALE or Exchange, 5-6 h.p. water-cooled Rexette tricar, coach-built, wheel steering, two speeds, chain driven, free engine, just overhauled, new non-skid Grose cover on back wheel, two accumulators, three lamps, pedal operated like car, good hill-climber; will exchange for two-seater car, or sell for £35 cash.—Apply, W. H. Robinson, 205, Crookes Valley Road, Sheffield.

LAGONDA, 10-12 h.p., water-cooled, three speeds, coach-built, extra wide forecar, all new tyres last autumn, four lamps, two spare covers, 32 miles hour, and 65 miles non-stop (Staines to Salisbury) last autumn, engine and gear overhauled thoroughly by makers last November; selling for car; best cash offers will be considered by O.G., c/o Mitchell's Garage, 110, Radford Road, Nottingham.

HANDSOME Light Tricar, 6 h.p. N.S.U., two-speed gear, free engine, fan-cooled, Simms-Bosch high tension magneto, coach-built Phœnix Trimo, specially built, 6ft. by 1ft. footboards, brass beaded edging, with mahogany toolbox, enamelled green, fitted, and with two-way generator and extra single generator fitted, Peter-Union tyres, 2½in., back studded, with security bolts, three Autoclipse lamps, two oil ditto, and one electric, full set of spares, Gloria and Dermatine belts, and extra set of tyres, two horns, one electric, only driven 300 miles, faultless; cost £109, accept £60, lowest.—Apply, 28, Charing Cross Mansions, W.C.

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9, Shoe Lane, Fleet Street, London. Wauchope's supply any make of motor cycle.

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MILLFORD Two-seated Forecarriage, Clinchers, fit any bike; £8.—190, Mellison Road, Tooting.

SIDECAR, rigid, new Continental, easily attached; £3 10s.—Dobson, 30, Angell Road, Brixton.

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STRONG Sidecar, fit any frame, 26in. wheel, upholstered; sacrifice £4 15s.—123, Holloway Road, London, N.

FORECARRIAGE, detachable seat, 26in. Clinchers; £4 10s.; also some motor bicycle accessories.—Wood, Burutu, Waddon, Surrey.

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MODERN Low-built Motor Cycle; cheap, cash, approval, perfect.—Ketton, Rockley, Retford.

WANTED, tricar, must be in good condition and cheap.—Hooper, 3, College Terrace, Southampton.

WANTED, Model E. Longuemare; cheap, approval.—Fielding, St. George's Square, Hebden Bridge.

LONGUEMARE Model B22, good condition; cheap.—Motorist, 27, Cranbrook Park, Wood Green, London.

WANTED, runabout or powerful quad; exchange 2¾ h.p. bike and gent's cycle.—A. Dorrell, Croxley Green, E.S.O.

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WANTED, pair of 26 by 2½ wheels, with tyres and tubes; exchange or sell 2¾ h.p. engine.—87, Orlando Street, Bolton.

MAGNETO wanted, as used on F.N. motor cycle, or similar type.—Particulars to No. 8,912, *The Motor Cycle* Offices, Coventry.

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WANTED, good modern motor cycles; cash waiting if quality and prices are right.—Farrar, Square Road, Halifax.

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WANTED, three-speed reverse gear box, Chater preferred, light car, live back axle, for central chain drive; above must be nearly new, cheap for cash.—Addison Lankester, Highwood, Kingston Hill, S.W.

WANTED, Litette tricar; exchange 1907 Roc cycle, 4 h.p., and cash; Roc in perfect order; owing bad weather and ill-health, not done 70 miles since new; state lowest cash, condition, full particulars.—Litette, Harrison and Co., Pocklington, York.

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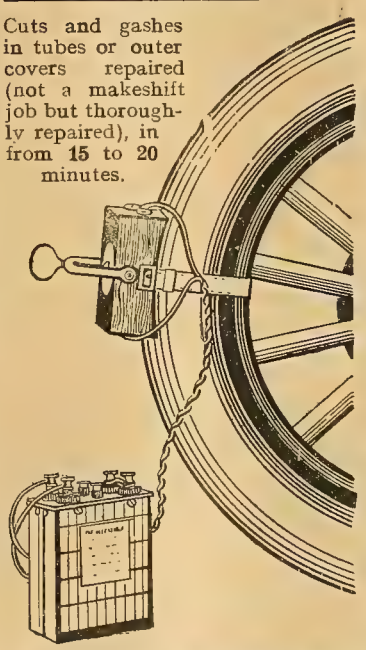

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WANTED, good modern motor cycles; cash waiting if quality and prices are right.—Farrar, Square Road, Halifax.

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MISCELLANEOUS.

KEEP Cool by fitting the Ideal fan, on ball bearings; price 28s. 6d.—Below.

BE Your Own Judge, and fit a Silent silencer on seven days' approval.—Below.

FOOTRESTS.—Try mine; light, strong, cheap; 7s. 6d.—G. Aldington, 59, Haydon's Park Road, Wimbledon, S.W.

WHIPCORD Breeches, latest cut; 10s. 6d.—J. C. Savage, 119, Donegall Street, Belfast.

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WHIPCORD Cycling Breeches, latest cut; 10s. 6d.; write for patterns.—Booth, tailor, Longton, Staffs.

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N.S.U. and Roc Agent, Hodgson, 10, Horton Road, Bradford.

ROC Agent.—Two brand new Fishback belts, ¾in. and 1in., 8ft. 6in. long, 10s. 6d. each.

N.S.U. Agent.—2¾ h.p. De Dion pattern engine, £2; motor cycle frame, £1; two Rotax car coils, trembler, new, £1 5s. each.

ROC Agent.—3 h.p. Star, new Continentals, foot brake, in splendid order, £10; 3½ h.p. spring frame Bat, 2¾ Palmers, no pedals, very fast and powerful, £15.

N.S.U. Agent.—2¾ h.p. Bradbury, condition like new, trembler coil, new tyres, £14; 3½ h.p. Phelon and Moore, two-speed, non-skid back, all accessories, like new, £28.

ROC Agent.—Continental tyres, 26 by 2, 24s., tube 9s.; 5s. allowed for old cover, 3s. for tube; all sizes in stock; horns, usual price 3s. 6d., and 6s., to clear 2s. 6d. and 4s.; don't miss these bargains.

ROC and N.S.U. Agent.—Hodgson, 10, Horton Road, Bradford.

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BOWDEN Back Brake; exchange for Chapman back-pedal brake.—1, Borrett Road, Manor Place, Walworth, S.E.

TWIN Trembler Invicta Coil; best offer over 14s.; new platinums.—C. B. Jones, jun., 10, Maxwell Road, Rathgar, Dublin.

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MISCELLANEOUS.

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BOOTH.—Silent silencers, suit engines to 5 h.p., no back pressure, very efficient; 3s. 3d.

BOOTH.—Fifty pairs Xl'all spring forks, latest 1908 pattern, fit any machine,

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BOOTH.—Motor handle-bars, 20in. long, 5s. 6d.; Price's patent stands, 5s. 11d., new.

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BOOTH. — Sidecar, shop-soiled only, rigid, beautifully upholstered; cost £12 12s., to clear £5 10s.

BOOTH.—New motor cycle frame, complete with wheels, belt rim fitted, wide mudguards, two cable brakes, valve lifter, long bars, low built, beautifully enamelled, suit twin engine; £6 5s.

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BOOTH.—Engines: New 6 h.p. twin Antoine, complete, with contact breaker, valve lifter, and pulley; £7 19s. 6d.

BOOTH.—New 5 h.p. water-cooled tricar engine, best make, M.O.V., 1907 model, as received from makers; £7 19s. 6d.

BOOTH.—4 h.p. Antoine engine, M.O.V., nearly new; £5 15s.; new ditto, £6 5s.

BOOTH.—Coronet spring seat-pillars, entirely eliminate vibration, fit to any machine in three minutes.

BOOTH.—Coronet spring seat-pillars make your high built machine so that both feet can be placed on the ground while in the saddle.

BOOTH.—The price of Coronet spring seat-pillars is low; send for descriptive literature; special terms to agents.

BOOTH.—Bad roads appear good to the rider of a Coronet seat-pillar.

BOOTH Wants sidecars; give in exchange new £8 8s. gent's cycle, fitted roller brakes, free-wheel, best tyres.

BOOTH is wholesale agent for Greenwood's variable speed pulleys; delivery in two days; prices free.

BOOTH.—500 Fullers plain Midget coils, as exhibited at Olympia; 10s. 6d.; twin-cylinder, 21s.

BOOTH.—Send your old coil as part payment; liberal allowance; quotation submitted.

BOOTH.—Large stock Fullers accumulators; Rex, 16s.; Minerva, 17s.; Midget, 16s.; C2, 17s.

BOOTH.—5s. 6d. is allowed for your old accumulator in part payment; delivery immediately.

BOOTH.—N.A.B. spring seat-pillar, 7s. 6d.; new bench lathe, 3in. centres, 24in. bed, four-speed cone, 17s. 6d.

BOOTH.—Please note our address: Coronet Works, Wade Street, Halifax. Telephone, 198Y.

TRICAR Chassis; £10 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

CLARENDON Set, including frame, rims, belt rim, engines, all new goods; £5 15s. the set. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

BULL'S-EYE Lenses, concentrate light right ahead, 3in., 3½in., with plated rim, 1s. 9d.; better quality, cut and polished, without rim, 3in., 3½in., 3¾in., 1s. 9d.; 3½in., 2s.; 4in., 2s. 6d. each, carriage paid.—Payne, 149, Metchley Lane, Harborne.

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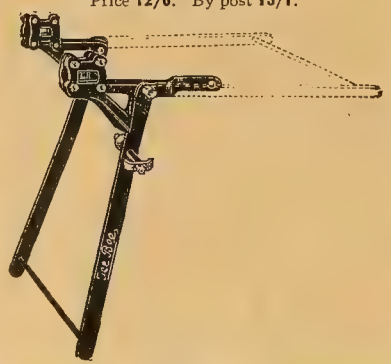

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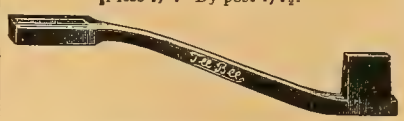

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MISCELLANEOUS.

FRAMES Made to Order, with girder forks and engine lugs included, at £2 15s.; No. 6, £3; wheels, 17s. 6d. pair.—Millard, Belvedere.

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FARRAR'S 1907 3½ h.p. Quadrant Engine sets, very little machining required; £3 19s. set, very few left.

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FARRAR'S are open to buy, sell, or exchange anything in the motor line.

FARRAR'S want sidecars in exchange for new £10 10s. gents' cycles, guaranteed 12 months.

FARRAR.—Send for my price list; pounds saved; sole agent Premier accumulators. — Farrar, Square Road, Halifax.

EXCHANGE Fulford forecar, 28in. wheels, good Dunlops, for front wheel, forks, and sidecar. — 223, High Street, N., E. Ham.

CHARGING Set, Fullers three-cell set, complete, for charging accumulators, brand new; accept 20s.—Hitchings, 74, Bold Street, Liverpool.

CHARGING Plant, ½ h.p. oil engine, 100 watt dynamo, rigid sidecar; wanted, light three-wheeler, or sell. — Kennedy, jun., 15, Aldford Street, Mayfair.

CONTINENTAL Cover, 28 by 2, brand new, 15s.; Clincher 28 by 2, 8s.; Ideal fan, perfect, 12s. 6d.; Lester silencer, 12 by 4½, 4s.—4, Laurel Grove, Southport.

CARBIDE, guaranteed, 4, 7, 14 lb. tins, 3½d. per lb.; should be ordered in 21 lb. lots to save carriage.—Stansell and Son, Acetylene Gas Engineers, Taunton.

12 Genuine M.M.C. Motors M.O.I.V., 3 h.p., new; also 6-9 h.p. car motors, M.O.I.V., to be sold at very low prices, —Rush, 199, Piccadilly, W. Telephone, 2113 Mayfair.

EXCHANGE New 1908 £12 12s. three-speed push cycle and new £4 4s. Edison standard phonograph, for good motor cycle. — W. Hayes, Pontywain, Crosskeys, Mon.

TRICYCLE, complete (less engine), very strong frame and wheels, tyres in fair condition, £3 3s.; also De Dion frame, 15s.—Hill, grocer, Abbots Bromley, Rugeley, Staffs.

26 by 2½ Motor Cycle Cover, new, 13s. 6d.; back hub, free engine clutch, chain drive, 15s. 6d.; pair tricar hubs, band brakes (heavy), 17s. 6d.—A., 8, Herndon Road, Wandsworth.

READERS Having Photographic Apparatus for sale should advertise in "Photography" Emporium, ½d. per word, minimum 6d. — Address, "Photography" Offices, Coventry.

MOTOR Cycle, less engine, low Abingdon frame, torpedo tank, good tyres, wheels, complete with all fittings; £6 10s.—Sohlin, Granville Villas, Child's Hill, Finchley Road.

COIL, 5s.; accumulator, 5s.; motor saddle, 7s.; Price's stand, 4s.; Duco motor lamp, 8s.; bargain, lot 27s.; pair path wheels, tyres, 25s.—Donovan, Halliwell Lane, Manchester.

26 by 2½ Riches, new, 10s.; new Bowden back, minus cable, 6s. 6d.; Ariel ⅜in. pulley, 2s.; wanted, spring forks, 24 by 2½ tubes; exchange, or cash.—A.W., 15, Charlotte Street, South Shields.

DE DION Trike Frame, round tank, no wheels, Longuemare carburetter, plain Nilmelior coil, Brampton multi-spiral saddle; what offers? — Bell, 5, Blomfield Road, Shepherd's Bush, London, W.

THE MOTOR CYCLE

Vol. 6. No. 252. Jan. 22, 1908.

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Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

Mixed Clubs.

DURING the last few weeks we have been repeatedly asked by readers which association motor cyclists should join and which offers the greatest advantages for the amount of the subscription. This question we considered could be best answered by setting forth the respective advantages of the three leading associations. We therefore asked the secretaries of the A.C.U., M.U., and A.A. to write us a short letter detailing the advantages of their respective organisations from a motor cyclist's point of view, and these letters we publish on the next page. There is, however, one view of the situation which we fancy has been overlooked by a large number of riders, and that is the question of mixed clubs. There are numerous clubs throughout the country with a mixed membership—that is, some are automobilists and some are motor cyclists. If, for example, one of these clubs should decide to affiliate its car members to the R.A.C. and its motor cycle members to the A.C.U., the whole of the members would be dealing with practically one organisation, seeing that the A.C.U. is a branch of the R.A.C. On the other hand, if it selected the M.U. for the car members and the A.C.U. for the motor cyclists we think it would tend to complicate matters. The M.U. reply to this would naturally be, "We can deal with both ourselves"; but the motor cyclists in that case would not be supporting the A.C.U.—a body formed expressly for the purpose of governing the pastime of motor cycling, and a body which, if it succeeds in fighting the motor cyclists' case properly and separately, should certainly receive the support of all riders.

We venture to think that few have looked at the present situation of affiliation, association, or whatever readers may like to call it from the above point, and it cannot be denied that there are numerous clubs in the country to which it will apply. Only to mention a few, there are the Essex M.C., the Southern M.C., the Motor Cycling Club, Manchester Motor Club, the Coventry Motor Club, Liverpool Motor Club, and many others.

"The Motor Cycle" Buyers' Guide.

READERS will be interested to know that we have in course of preparation a Motor Cycle Buyers' Guide—a feature which proved its worth in 1906, when it was first published, by the number of congratulatory letters we received with regard to its contents. The specification and price of practically every motor bicycle and passenger motor cycle on the British market will be included in the guide, which will be published in the issue of *The Motor Cycle* dated February 12th. This time the various types of machines will be divided into the following classes: (1) Single-cylinders; (2) multi-cylinders, V type, vertical, and horizontal; (3) passenger machines. Among the interesting details which will be included may be mentioned bore and stroke, type of valves, ignition and transmission, standard gear, type of forks, spring frames, size and make of tyres, height of frame from the ground, weight, and price. The issue containing the guide is always in demand, and provides a handy form of reference for everyone interested in motor cycling, either from the pleasure or business point of view.

Which Organisation Shall I Join?

Ever since the conference of motor cyclists at Lincoln last September we have been almost daily confronted with the above question. Apart from the members of clubs, there are thousands of unattached riders who realise that "Unity is Strength," and are willing to join an association on payment of a small annual fee on the assurance that their interests will be safeguarded. It is alleged by many of our correspondents that the printed forms issued by each body do not show exactly what a motor cyclist will get for his money We accordingly asked the Secretaries of the Auto Cycle Union, Motor Union, and Automobile Association to set forth for the benefit of our readers the advantages they claimed for their respective organisations. Below are the replies received

THE AUTO CYCLE UNION.

This Union, until recently known as the Auto Cycle Club, was formed in 1903, and is the governing body of the sport of motor cycling in this country. It is also the largest motor cycling organisation, having a total membership exceeding 2,000, including private members and the members of thirty affiliated clubs. The main objects of the Union are to act as a society of encouragement, to safeguard the rights and privileges of motor cyclists, and to take action where advisable in cases where general principles affecting the rights of motor cyclists as a whole are involved. As an example, as far back as 1904, the A.C.U. was instrumental in fighting and winning a test case, on the issue of which depended the question whether motor cyclists were to carry a red rear light or not. This, and many similar cases, in which the A.C.U. has been successful, have all helped to improve the lot of the present-day motor cyclist. The question of taxation is a matter which has received the attention of the Union, and through the Lord Montagu of Beaulieu, it approached the Chancellor of the Exchequer with a view to obtaining a reduction in the taxes for motor cyclists. In this the Union was unsuccessful, but there can be little doubt that the action of the Auto Cycle Union in championing the cause of motor cyclists will have a beneficial effect when the draft of the new Bill for the Motor Car Act is under consideration. The Committee of the Union has continually watched the interests of motor cyclists, and in the general case, which was laid before the Royal Commission, the interests of motor cyclists were carefully watched, and, as far as could be seen, adequately safeguarded.

Members of the Auto Cycle Union are entitled to a number of privileges, the chief of which are:

1. The receipt, post free weekly, of a copy of the *Royal Automobile Club Journal*, the official organ of the A.C.U., and a copy of the "Automobile Handbook" yearly.
2. Free registration on the competitors' register.
3. Reduced entrance fees in competitions, trials, races, etc.
4. Legal information, advice, and assistance.
5. Special touring facilities and Customs advantages on the Continent.
6. Information free of cost with regard to the best routes at home and abroad, and assistance in planning tours.

The privileges conferred upon members who intend touring abroad by this last item are in themselves more than worth the subscription, as will be seen by the following remarks made in the touring article by Mr. H. Howarth in the issue of *The Motor Cycle* for January 8th last: "First of all it is highly advisable to join the Auto Cycle Union. I found the advice and assistance from this source of the greatest value."

7. Consideration for any claims for financial and legal assistance in respect of actions at law, either civil or criminal, in connection with the use of motor cycles.

In cases where members have been harshly dealt with by a magistrate, and have appealed against the decision, monetary grants are made at the discretion of the committee to help to defray the expenses of the member. In this respect it is worthy of note that members carrying the A.C.U. machine badge, by means of which they may recognise each other when on the road, have a special claim upon the A.C.U. for financial assistance if summoned for contravention of any of the regulations of the Motor Car Act.

8. A comfortable club room in Piccadilly where members can consult all the motoring papers, write letters, and use the telephone.

It is as well to emphasise the fact that much of the work of the Auto Cycle Union, and especially its best work, is silent The benefits of membership of the Auto Cycle Union cannot altogether be measured by those which come back in a direct form to the individual member, but by the more friendly attitude of the local authorities, the improved condition of the roads, the cheapening of the cost of owning and using a motor cycle, and the great improvement which the Union in its capacity as a society of encouragement has been instrumental in effecting in the motor cycle. These things can only be secured if motor cyclists as a whole will unite to support, by their subscriptions, and by their efforts, a representative body such as the Auto Cycle Union, which is endeavouring to secure for them advantages which the individual is quite unable to secure for himself. For example, the Auto Cycle Union has undertaken to continue the annual dinner and entertainment given to the roadmenders on the Ripley Road, which entertainments have in the past been greatly appreciated by the men, who, recognising that users of this classic highway are interested in their welfare, devote themselves more willingly to their labour, knowing that their efforts to maintain the reputation of this road as one of the finest in the kingdom are not lost sight of. Another very material benefit which the A.C.U. has conferred upon motor cyclists is the great improvement which has taken place in British machines, due largely to the various trials and competitions promoted by the Club, of which particular mention should be made of the Six Days' Trial, the International Auto Cycle T.T. Race, Quarterly Trials, Hill-climbs, the Side-slip, and Silencer Trials—the valuable data obtained as a result of these trials being of the greatest assistance to the manufacturers. During the winter months a series of papers on subjects of interest to motor cyclists are read, and all members are invited to attend and take part in the discussions which follow.

These benefits are quite sufficient to justify the small subscription which the Auto Cycle Union asks as a condition of membership, namely, 10s. 6d. per annum for country members residing outside a radius of fifty miles from London, and one guinea per annum for town members. (Entrance fee 5s.) Motor cyclists are advised to defer joining any organisation until they have perused the magnificent new scheme of membership of the Auto Cycle Union, which will be published in a few days. It is hoped that everyone interested will do his share in supporting this, the auto cyclists' union, in which the car element is absolutely non-existent, and which essentially unites the whole of the motor cyclists throughout the country.

F. STRAIGHT, Secretary.

18, Down Street, Piccadilly, W.

THE MOTOR UNION.

In reply to your enquiry, the following is a brief statement in tabular form of the advantages which membership of the Motor Union offers to motor cyclists. The subscription is 10s. 6d. per annum. Please permit me to add that a large number of motor cyclists support the Union, not merely for personal benefits obtained, but in order to assist it in the public work which it carries on in the interests of the motor movement. If it had not been for the Motor Union and its work as a society of encouragement, there would not be so many motor cycles on the road to-day, and the cost of owning and running a machine would be considerably greater.

Advantages.

1. Legal information and advice free.
2. Financial support when the legal questions involved are of importance to motor cyclists generally, and in appeals to Quarter Sessions.
3. Touring information and facilities.
4. A copy weekly, post free, of the Motor Union official organ.
5. A copy annually, post free, of the "Motor Union Handbook."

Which Organisation shall I Join?—

6. Comfortable reading room, well stocked with maps, motoring literature, etc., at 1, Albemarle Street, W. Members' rooms in touring centres.
7. Right of exhibiting Motor Union badge upon their motor cycles, with its attendant privileges.
8. Motor Union insurance policy on special terms.
9. Motor cyclists are welcome to the provincial gatherings organised by the Union, and to other social functions arranged from time to time.
10. The benefits of affiliated membership of the Auto Cycle Union.
11. Representation on the General Committee of the Motor Union and the Council of the Auto Cycle Union.
12. Protection on the highway. The Union prosecutes in cases when cyclists are obstructed or assaulted.
13. The Union protects the interests of motor cyclists at national and local inquiries affecting motorists, and arranges for their direct representation at such inquiries whenever they request it or it appears desirable.
14. Week in, week out, the Union negotiates for the reduction of bridge and ferry tolls, the abolition or improvement of level crossings, the removal of dangerous corners, the cutting of hedges, and the removal of restrictions. Much of this work is silent and unreported.
15. The Union secures, whenever possible, free admission to exhibitions and reduced charges at hotels, etc.

The list could be extended, but the limit of space which you, sir, properly impose restrains me.

W. Rees Jeffreys, Secretary.

1, Albemarle Street, Piccadilly, W.

THE AUTOMOBILE ASSOCIATION.

We are affording to motor cyclists our well-known privileges both as regards our system of agents and the patrol organisation on all the principal roads in England, who warn car drivers and motor cyclists of any dangers on the road, and render assistance when necessary, conducing to the comfort and safety of all users of the road. These facilities are so well known that further recapitulation is unnecessary, and the fact that in two short years the membership roll of car owners has grown to over 5,000 is good evidence of its utility to motorists. The fee for motor cyclists is 10s. 6d.

The privileges we are affording motor cyclists do not constitute membership, but simply the road privileges of the Association. Stenson Cooke, Secretary.

Princes Buildings, Coventry Street, W.

Auto Cycle Union Notes.

1908 Tourist Trophy Conditions.

AT a recent meeting of the Competitions Sub-committee of the Auto Cycle Union, it was recommended to the General Committee that the Tourist Trophy Race for 1908, which will be held in October in the Isle of Man, should be run on a petrol consumption basis, as was the case last year. The Sub-committee was practically unanimous in this decision, since it considered that the result of last year's competition was eminently satisfactory. Last year, out of eight competitors, three used petrol at the rate of over 100 miles to the gallon. Of these, Marshall, who came in second, and, despite an accident, averaged 36.5 miles an hour, made a consumption average of 114 miles to the gallon; Brice, whose speed was considerably inferior, consumed fuel at the rate of 129 miles to the gallon, which makes it appear that he could have travelled faster. With the twin-cylinder machines the results were equally satisfactory, so that the new proposal to reduce the fuel limit, so that 100 miles to the gallon for single-cylinders and eighty miles per gallon for the twins must be maintained, is founded on a satisfactory basis.

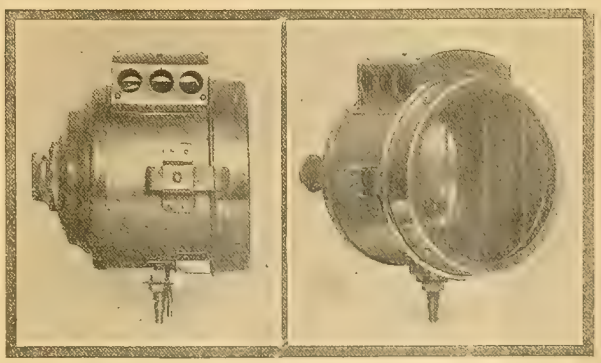
Quarterly Trials.

Another recommendation by the Sub-committee was that a special prize, probably a cup, should be given to the rider who competes in all of the quarterly trials held throughout the year and who makes a non-stop run in each. In the event of a tie the competitor who makes the best average time on the special hills on which times are taken is to be the winner. It was also recommended that the time should be taken up Amersham Hill, in addition to Dashwood. Amersham Hill is a far more difficult hill to negotiate, and so the data obtained on these occasions should be interesting. Unless a motor cyclist who has thoughts of competing for the special prize enters for and rides in next Saturday's trial, and every other quarterly trial held in 1908, he will not be eligible for it. To-day is the last day for receiving entries, which should be sent to the A.C.U. secretary, 18, Down Street, Piccadilly, W.

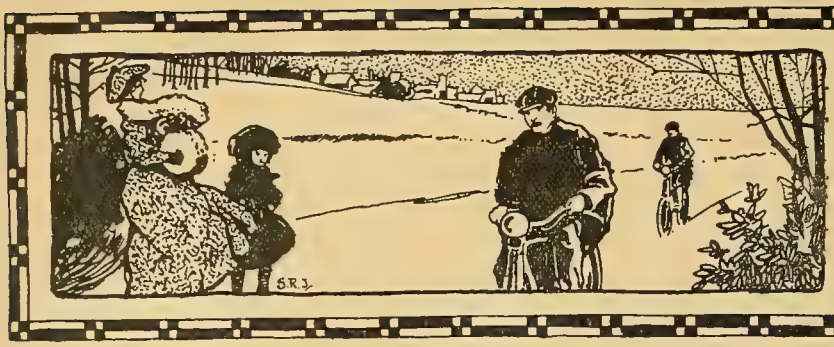
For the benefit of new readers, we may repeat that the trial starts from Uxbridge, and the route to Banbury is *viâ* Wheatley, Islip, and Bletchington, returning *viâ* Bicester, Tring, and Amersham.

HEADLIGHT FOR MOTOR CYCLES.

A FIRM which has followed the correspondence on motor cycle lamps appearing in our pages is the Premier Motor Co., Ltd., Aston Road, Birmingham, and, as a result, the company has decided to market a motor cycle searchlight made of brass with magnifying lens at the back. The front glass is dissected in such a manner as to diffuse the light and avoid the glare common to the usual big searchlight. It has a separate carbide generator. The lamp, which is illustrated herewith, is actually ready, and will be marketed shortly under the name of the Premier Searchlight. It is claimed to be capable of projecting the light fully sixty yards, so that the general grumble that motor cycle lamps are insufficiently powerful is likely to be a thing of the past.



Two views of the new Premier Searchlight for motor cycles.



To Switzerland and Savoy by Motor Cycle.

By H. HOWARTH.

(Continued from page 43).

Isolated Mountain Chalets.

High up on the mountains to our right we now and then espied little mountain châlets, some of them perched at such a dizzy height as to make us wonder how the people who inhabited them ever got down from their eyrie, and, still more, how once down they contrived to get up again.

We now began to notice that the light in the gorge was failing, and although it was still early—about 6.30 p.m.—the darkness came on so rapidly that we decided it would be safest to find a place to spend the night. Acting on this decision, we engaged rooms at a rambling wooden "auberge," ensconced in a cleft of the mountains, apparently miles from any other habitation. We had misgivings at first that the accommodation might be crude, but we were pleasantly surprised to find it excellent. Our host did his utmost to please, and his charges were ridiculously low.

In these mountain fastnesses of Haute-Savoie the dress of some of the natives is peculiar. The men were often clothed in a fearful and wonderful pair of baggy velvet trousers, constructed with such a superfluity of material as would have made a dozen such garments on the English plan. The women, too, wore trousers, which successfully hid any natural grace of figure they may have possessed, though probably this mode of dress is most suitable to the conditions under which they live, such as tending goats and other cattle on the mountain sides; and the effect is very picturesque and strange to the eyes of the foreigner.

Before turning in for the night, we experienced one of the prettiest colour effects that one could wish to see. The sun, although for hours invisible in the gorge, was still shining brightly, and the shadows of the rugged cliffs on the west side were cast with great clearness on the flanks of the mountains to the east, the peaks of the latter, of course, being brightly lit by the rays of the sun. As the evening wore on, the dark shadows crept nearer and nearer to the snowy tops, until at last, altering from pale gold gradually to crimson, the high peaks only showed, glowing like firebrands high above us, whilst the valley was wrapped in darkness. The effect, however, was as brief as it was brilliant, and slowly, one by one, as the sun went down, the lights "went out."

We Lose Our Way.

In the morning we soon reached Thonon, entering the town by a long and sinuous descent, parts of which command pretty views of the town and lake Leman. Here we lost our way, getting too near to the water's edge, and we rode for miles, taking innumerable turnings—in one case riding through a private vineyard—before we found it again. Then by the side of the lake we proceeded to Evian-les-Bains, a town beloved of the "cooks." A little further on we stopped to watch an angler, who appeared to be plying his rod and line with considerable effect. On looking into

Gorges du Fier (near Annecy).

the water we were not surprised at this, for veritable shoals of fish, of a kind we could not quite make out, swam fearlessly all around the bait. Continuing by the lake side, we once more crossed the Swiss border at St. Gingolph (where a glance at our permits sufficed the Customs officials), and headed for Aigle, across the Rhone Valley.

To Switzerland and Savoy by Motor Cycle.—

In Switzerland we were careful, in passing through villages, to keep pace down. We had been warned that conditions for motoring in this country were bad, but nothing gave us trouble except the roads; the people were everywhere very considerate, and supplies of petrol and oil were easily obtainable. The roads, however, were fearful in places, being narrow and scored with deep ruts. Reaching Aigle, we found

Savoy peasant women.

ourselves at the foot of what proved to be the hardest climb of the tour, viz., the Col-de-Mosses. Being eager for the fray, we rode straight through the village and commenced the climb. After the first few turns had been negotiated, the engine refused to pick up speed on the top gear, so the low gear was engaged, and for the greater part of the climb this was kept in. Of course, on the low gear the ascent was child's play to the powerful twin, in spite of its double load, and the throttle had to be kept almost closed or the engine "raced."

A Deceptive Road Surface.

We stopped once or twice during the ascent to admire the country, the superb views from the col being the finest examples of Alpine scenery we saw during the tour. This climb was by no means uneventful. The road up the col was for the greater part covered with a layer of fine white dust, and there being no wind to blow this about, the road had the appearance of being quite good. But appearances are proverbially deceptive, and beneath the dust were some very deep cart ruts. When the front wheel strayed into one of these, the Vindec generally spread itself and its passengers over the roadway, for the steering wheel skidded helplessly in the deep dust, and control of the machine was impossible. We were rolled in the dust three times during the ascent from this cause, but in each case the spill was more or less anticipated, and no harm was done. The free-engine clutch and low gear made starting-up on the incline a simple matter, for with both riders astride the machine we could start from a standstill anywhere. How a heavy twin without such a fitment would fare under similar circumstances I do not know, for had we wished to run downhill to a level part of the road on which to start, we should have had as much as six or eight miles to travel, whilst to run alongside the machine for any distance uphill was impossible.

We finished the day at Bulle, where we found the hotel accommodation quite good and the charges incredibly low. Having arranged to call for letters at Montreux, we rode south the next day, and for the third time reached the shores of Lake Leman, this time at Vevey. From this town we rode to Montreux, passing the pretty Ile de Salagnon, at Clarens, *en route*. We found this, the north side of the lake, far prettier than the south; the mountains of Savoy looking completely different when viewed across the intervening waters of Geneva's lake, and it was hard to realise that only a couple of days before we had been riding among those same mountains, whose delicate tints and noble contours now looked almost fairylike. Riding due west, we struck off from the lake inland at Lausanne, making for Pontarlier. This road presented a great variety of scenery, from dense pine forest and river views to wild Alpine effects. Passing through Orbe to Vallorbe (Swiss Customs), the river views were very fine indeed. At Ferriere-sur-Jougne we were once more in French territory, and here I had to exhibit my papers to the Customs officials for the last time.

A Welcome Improvement in the Roads.

Sorry as we were to leave the Alpine scenery of Switzerland behind, we could not help feeling relieved when the dreadful Swiss roads gave place to the well-kept "Routes Nationales" of France. During this ride we had been worried by a leaking tank, which had grown slowly worse till, now, it was running the petrol away in a continuous stream. We found a plumber at Pontarlier, and, by dint of much sign language and jingling of coins, persuaded him to solder up the leakage. It meant taking off the tank, but

Aigle, at the foot of the Col-de-Mosses.

the trouble was amply repaid by the saving in petrol and the removal of the risk of fire, which is always present with a badly leaking tank.

Although the principal beauty-spots of our tour had now been passed, some 750 kilometres still lay between us and Boulogne, the port we had decided to sail from; and, after that, more than 300 English miles must be ridden before we could reach home.

(To be continued.)

An Early Experience.

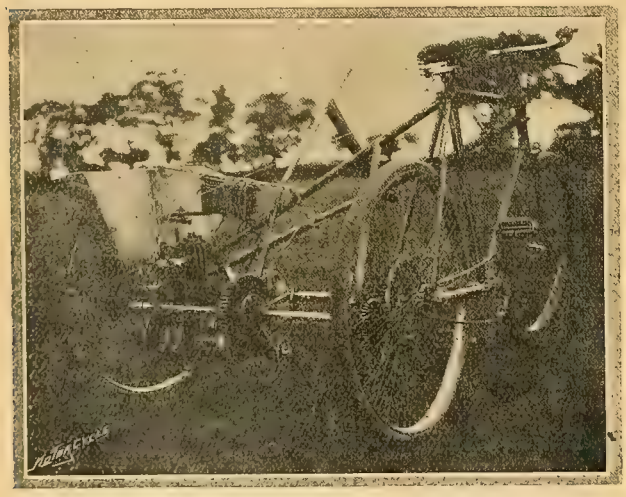
MOTOR cyclists nowadays are apt to imagine that their pastime or business has become all cut and dried, with clutches, twin-cylinder engines, and two-speed gears brought to perfection, and to think that experiments have become unnecessary.

But, none the less, there are still some daring spirits hidden about the country who endanger their lives (and perhaps the lives of others) in trying to evolve machines that combine novelty with some prospect of commercial success. Unfortunately, the latter element was conspicuous by its absence in the case of an "invention" I am about to describe. I had better premise that the idea originated in the very early days of motor cycling, when a good (or bad) engine commanded a big price.

The Contraption.

The machine consisted of an extra wheel attached to a framework carrying a 2¾ h.p. engine, tank, and gearing, which could be joined to an ordinary roadster bicycle in a few minutes by simply screwing up three nuts, so turning the bicycle into a motor tricycle. It was thought that it would be ideal for touring, when, having arrived at one's destination, the motor attachment could be removed and the push bicycle brought into use for short distances. Unfortunately, before the whole thing was completed circumstances compelled the closing of the factory, and I was requested to store the machine and make it go if possible.

I had no leisure to tackle it till some months ago, and then only at the earnest request of an enthusiastic young Frenchman who was spending his holiday with me, resting from the ardours of a course of electrical engineering lectures in France.



The motor attachment referred to in the article, consisting of an old tricycle engine, and parts, connected to a roadster pedal bicycle.

So we went to view our Pegasus in the disused stable where it stood, and found that it lacked a silencer, oil pump, petrol pipe, brake control levers, coil, accumulators, and switch.

The engine, which had a heavy outside flywheel, drove through an aluminium clutch to a small pinion, which was geared into a large fibre wheel mounted on the live axle, communicating the power to both road wheels by means of two cogged wheels, containing free clutches in their centres, and meshing with large toothed rings fixed permanently to the back wheel of the bicycle and the wheel of the attachment. This method dispensed with the necessity of a differential gear, but gave rise to steering complications, which will be described later.

A silencer was soon made out of an empty coffee tin. It did not check the noise much, but it looked effectual, and the shine added a nice finish to the rather rusty components.

A small piece of copper pipe bent to shape, the ends wedged into pieces of a vulcanite pen and forced into the tank and carburetter, made a splendid petrol-tight joint, which has stood violent shaking with no signs of a leakage.

The Bewildering Control.

The problem of control levers was more serious. However, with string and pieces of indiarubber we soon overcame the difficulty, but the driver was of no use unless he "knew the ropes," for a pull on the wrong halyard had unexpected results. Batteries were borrowed from our own small motors, but neither of us had a trembler coil, so we rigged up a huge medical coil on a cross-bar of the frame (with string as usual). When turning the engine to see if there was a spark, I accidentally touched the high-tension terminal; there certainly was a spark!

We found it impossible to start the engine by pedalling the tricycle, as the free wheels in the driving pinions came into play and the piston did not move, so we got a long leather strap, wound it round the pulley, tickled the carburetter, hauled in the slack of the control ropes, held our breaths and pulled. There was a fearful backfire, which tore the strap out of our hands, but that at least proved there was life in the machine, and after many adjustments we had the engine running steadily, with a noise like the *Dreadnought* at target practice. The next proceeding was to see if it would actually go with the clutch in, so as we had no numbers we adjourned to a large meadow, and the Frenchman, having made his will and taken a fond farewell of us all, proceeded to mount. I had been positive that as soon as he let in the clutch the front wheel would rise up and the clutch handle would disembowel him, but to my surprise he went off grandly, gathering speed every minute. We all cheered vociferously, but it was soon evident that he was having trouble with the steering, the cows in the field being far too astonished to get out of the way, and the bouncing of the wheels over the mole heaps keeping him up in the air most of the time. Like John Gilpin, he could not stop, for there was no switch or brake, and he had forgotten which string to pull; then to his horror he found that the fiery steed would not steer round to the left, and rather than charge a high bank, he turned the machine incontinent into a big thorn hedge, reinforced with barbed wire, and everything disappeared from view—rider, machine, and all.

The Result of Riding Experimental Machines.

When I could control my laughter I rushed to the rescue, and could hear the engine still roaring away in the thicket; then the Frenchman appeared, all blood

An Early Experience.—

and scratches, but anxious only for the tricycle, which we hauled out in good order. He was ejaculating, "Nevaire I see a so foolish silly what I am. If I steer ze ofaire way she is alright." And it was quite true, for it would steer to the right quite easily at full speed, but once on the camber of the road in order to pass a cart, it was enough to turn one's hair white to get to the centre again. This successful cross-country journey so raised our enthusiasm that we adjourned to the main road, having taken the numbers off one of our motors and tied them on with the usual piece of string. This time, for safety, I was deputed to run behind with a string attached to the exhaust lifter, in order to stop the machine if we encountered any traffic. Traffic there was in plenty, but I was not there to exercise my restraining influence, for the engine went off with such gusto that the string was soon torn from my hands, and again the Frenchman pursued his fiery way unchecked. With his eyes protruding, and his face set, he grasped the handle-bars with a "do or die" look, but when the speed was getting near thirty miles an hour, the fact dawned on him that I could scarcely be running at that rate, and he managed to disengage the clutch. As the pace dropped he attempted in his pride to turn round and come back to us, but all the wheels doubled up under him and left him standing in the road.

By this time our blood was up, and with a few kicks the wheels were made to assume some sort of a round shape; at least they did not touch the frame anywhere, which was enough for us, and we continued to ride till we got quite used to differentiating the exhaust lifter string from the surrounding cordage, and thus could stop the machine without the aid of the nearest bank, as was previously the case. But our difficulties were not over, for the spring controlling the clutch became fierce enough to get a good grip of the aluminium casing, so that the road wheels still went forward, although the clutch was disengaged. In this case, if we wished to turn without stopping the engine (and it took time and two men to start it again) the only way was to dismount and run to the front and push heartily against the machine while hauling the front wheel round. Several times the engine won, and we found ourselves in the ditch with the machine on the top of us, which, I think, gives a good illustration of the power obtained by gearing down.

Finally, having successfully undertaken some long outings on it, with no worse fate than striking fear into the hearts of every human being and animal we overtook or met, we concluded that life was getting too strenuous, and relegated our steed to the stable, where it awaits the return of the Frenchman, armed with plans to convert it into an "hair-sheep." F. R. K.

AFFILIATION OF MOTOR CYCLISTS.

AS one of the delegates representing the Leeds Motor Cycle Club at the conference held at Lincoln, and also as one of the eight elected thereat to form what is now known as the reform party, I should like the pleasure of reviewing the position as it stands, and, if possible, place my view, and also that of my club, clearly before motor cyclists, with a view of formulating something of a definite character. The first and primary objection of our club against joining the A.C.U. is the fact that it is not a parent body; it is not the head of motor cycling. It owns allegiance to the R.A.C., it accepts its subsidy, and as a consideration for such it agrees to place itself under its supreme control, giving it the power of veto over any decision arrived at that shall in its opinion be detrimental to the interests of the sport and pastime of motor cycling.

That the veto has not been used does not in any way invalidate its nature. It may be enforced at any time, and when that time arrives who is to determine the committee of the A.C.U. or the R.A.C. as to the nature of what is or what is not detrimental to the sport or pastime? The R.A.C. has recently vetoed hill-climbing competitions over public roads, except when these roads are by special permission of the authorities closed to other traffic. The A.C.U. may rightly determine that contests of this character, under certain conditions, may justly be permitted to motor cyclists, and should the R.A.C. place its veto upon this, who is to decide? May it not reasonably be argued that what is dangerous to other users of the road, when motor cars with wide tracks are racing uphill, is sufficient protection and security when only narrow-tracked motor cycles are competing? Further to this there are many points in the relationship of car and cycle where their interests begin to diverge: In prospective legislation, differentiation of taxes, consequent, firstly, upon variation in cost and value; secondly, use and wear of roads; thirdly, and not the least in importance, that nearly all of them are owner-driven, and by the nature of their construction and liability of both man and machine to suffer severely in any accident, however caused, they are bound to be more carefully driven. Further, we desire some variation in the fines and penalties to which we are liable, and here I venture to state that had we had a separate organisation a few years ago something in that direction would have been accomplished.

Again, what particular reason is there for the A.C.U. to accept the controlling authority of the R.A.C.? Would it not be just as reasonable to accept the parentage of the Motor Union or the Automobile Association? What an absurd position the A.C.U. would be in if two other cycle unions were formed, and one became the child of the M.U. and the other paid obedience to the A.A. Does it not seem strange that the A.C.U. should accept a sum to be called the offspring of the R.A.C. and then pay to the M.U. a certain sum for its protection and parentage? No, this will never do. We must insist upon our being at all or any cost the Alpha and Omega of motor cyclists—independent and separate.

The affiliation fee is a matter of secondary importance. We desire the lowest that is consistent with efficiency, and with such dignity as we think our ideal body ought to have. Our position as an independent body would be strong. We could enter into any arrangement with either the R.A.C., M.U., or A.A., but all such agreements must be mutual in their nature and reciprocal in their interpretations.

How to attain this end.

In a recent issue a suggestion appeared from our Newcastle friends. Its charter was permeation. Join the A.C.U., it said, agitate within its ranks for reform, spread dissension until you have a majority in favour of reform, and then strike for independence. This may or it may not succeed. For our part we dislike the spirit of permeation. Sometimes the would-be permeator is permeated. No, the way is to stand aloof, but educate and agitate outside, until the A.C.U. comes to realise that the greatest stumbling block to it ever becoming fully representative of motor cycle clubs throughout England and probably throughout Scotland, Ireland, and Wales, is the fact, clearly proven, that it is not an absolutely independent and separate organisation. Should it realise this disability, and change its constitution at its next council meeting, all will probably be well, but, if not, the alternative is to convene a meeting (at some suitable centre) of unaffiliated clubs and clubs desirous of independency, and see if some scheme of a satisfactory nature cannot be formulated. We do not desire to do this for its sake alone. We realise that the A.C.U. has some valuable experience behind it, some exceptionally clever men at its head, a prestige and position honourably and industriously attained; but, realising as we do the undisputed fact that motor cyclists are not numerically weaker than autocarists, we insist upon our freedom to exercise our maturity and to use, unhampered and without restraint, our knowledge and experience, independent and irrespective of motor car associations.

HAINSWORTH WHEATER.

OCCASIONAL COMMENTS BY "IXION"

Compression Ratio in Twins.

A reader writes me in much disgust because he has found that when at the top of its stroke the piston of his front cylinder is nearer the head of its cylinder than the rear piston is when it also is at the top of its stroke. This is the deliberate design of the makers, however, and not a matter of carelessness, as he imagines. The explanation is that with splash lubrication on a V twin of the present models the front cylinder receives more lubricant than the rear cylinder, as well as meeting the greater cooling draught. The makers, therefore, attempt to design their engines so as to keep both cylinders at an even temperature. They cannot easily distribute the lubricant more evenly, nor can they readily interfere with the natural course of the cooling draughts. But naturally a high-compression cylinder experiences more heat than a low-compression cylinder. Consequently they give the front cylinder a higher compression ratio than the rear. It can dispose of more heat, so they give it more heat to generate, and thus by a rough and ready makeshift, which works admirably in practice, they preserve both cylinders at an approximately even temperature in running. I do not know if all the favourite twins of to-day are thus designed, but several of the most popular present this feature, and I should not be surprised to learn that it is universal.

Sidecars and Spring Frames.

The letter of Zenith Motors, Ltd., in the issue of December 18th, contradicted a contributor for asserting that a sidecar could not be used without fatal results to their particular make of spring frame motor bicycle. None the less, he was right with regard to some spring frames. There are some makes in which the springs come between the two points at which the sidecar clips are normally attached to the bicycle. The sidecar frame is rigid, whereas these two points on the bicycle are continually varying their distance from each other. Obviously, therefore, if a rigid sidecar be attached to such a frame, the sidecar frame will be continually "whipping," if the bouncing of the cycle be powerful enough. Or, alternatively, if the sidecar frame be rigid enough to withstand the compression of the springs on the cycle, the cycle will become to all intents and purposes a rigid-framed machine.

An Eisemann Magneto Tip.

A German military officer sends me the following tip from Berlin. He had to take charge of some shooting practice six miles from his house at 6.30 every morning, and he used to start at 6.10 on his 3 h.p. N.S.U., carrying it down some steps into the street. One morning it steadily refused to start, and on examining it he found someone had been fooling with it and smashed the bottom spring on the contact breaker of the magneto. No spares were available, and yet he had to be at the range, six miles off, within a quarter of an hour. Searching his pockets, he found a flat indiarubber band, and wrapping this four times round the top part of the make and break, he found the engine started immediately. This makeshift was so successful that he did fifty miles on it without misfiring, until the arrival of a spare part. He further sends me a design for a paraffin or benzol carburetter, in which he utilises the exhaust box, insulating it with asbestos. This article is too fiery to describe, I am afraid. A conflagration could only be a matter of time.

A Complaint.

A rider asks me if "twin-cylinder engines are still in the experimental stage," since his machine refuses to run steadily. He sets his levers till the machine is travelling, say, 15 m.p.h., and it will keep to that pace for, say, half a mile, and then, without any alteration of the levers, it will suddenly bolt off at 30 m.p.h., which he finds very inconvenient. I should think so. He ascribes it to the use of automatic inlet valves, and consults me about sundry twin-cylinder engines fitted with mechanical inlet valves, saying he has noticed the same phenomenon on most a.o.i.v. engines, even on single-cylinders. I may inform him there are many twin-cylinder machines on the market that are no more experimental than the single-cylinder he praises so highly, and that automatic valves are at present more universal on twin-cylinder engines than m.o.v. The jerky running he complains of is not due to the valves at all, but is divided between two causes. The form of lever employed has a (very) little to do with it. The levers are held in position by spring washers of no particular strength, and so shift position gradually when there is any vibration. His eye, viewing them vertically, fails to detect the slight opening of the throttle or advance of the spark due to vibration. But the main reason, I am inclined to think, is due somehow to the inefficient type of throttle valve used on the now obsolete model he refers to. It is merely a disc hinged on a cross spindle, and I have met with this uneven running whenever I have used the carburetter in question, even on single-cylinder m.o.v. engines. I speak more emphatically, because I recently bestrode the latest model of the twin referred to, which has precisely the same engine as the one complained about, the same arrangement of levers, and an altogether different tight-fitting barrel throttle. I think if he cut the inlet pipe, and sweated in a more modern throttle, he would find it perfectly possible to run this engine steadily and regularly at any number of revolutions he wishes.

The preliminary list of Peugeot motor cycles and engines has just reached us from Mr. J. Taylor, the sole agent, 318, Percy Road, Birmingham. Any reader can obtain a copy on application.

QUESTIONS AND REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Necessity for a Hot Air Pipe.

On my 2 h.p. Clément Garrard motor bicycle a small tube is fitted from silencer to carburetter. Will the engine work as well without it, as I have only lately purchased the machine?—O.V., Bucks.

The tube in question is to convey warm air to the carburetter and assist vaporisation. If you wish to see if the engine will run well without it, the obvious thing to do is to remove it, but, generally speaking, carburetters require to be warmed during the cold weather.

Twin-cylinder Mounts and Two-speed Gears.

(1.) Do you think a 5 h.p. Vindec fitted with spring forks and a two-speed gear an ideal mount? (2.) Is a two-speed gear fitted to a machine and used as a bicycle alone superfluous for an athletic man of 24? My idea is that for wet weather riding, starting on hills, and in crowded traffic, the two gears must be a great help, but I want to know if it is reliable? Hoping you will assist me on this two-speed gear question—C.G.W.

(1.) Yes, the machine is an excellent one. (2.) No, a two-speed gear is always an advantage provided it is well made, which the one in question is. You will find the latest pattern quite reliable.

Suiting Carburetter to Engine.

I have a twin-cylinder 7 h.p. Peugeot engine which I have fitted in my spare time to an open frame tricar. I bought a genuine De Dion carburetter for this engine, believing that, although heavy, it was the best. I use a Peugeot coil, and have always used dry batteries on previous machines, but I am unable to get the engine to start, either by starting handle or by running alongside. Can it be that the carburetter does not suit the engine? Everything seems in order. I have an induction pipe from carburetter about 18in. long. Is that bad? Ought all air to be off in De Dion as in other carburetters?—J. McN., Dublin.

Provided the spark takes place at the correct time, and is of a healthy nature, you may be fairly sure that the ignition is not the cause of the trouble. Personally, we should advise you to get another make of carburetter and experiment with various-sized jets and choke tubes until the correct combination is found. Either a B and B. or a Longuemare gives every facility for adjustment. The length of induction pipe mentioned is no great disadvantage if the carburetter is suitably warmed, but personally we should prefer a short one. During the cold weather especially, particular attention must be paid to closing off as much air as possible from the carburetter when starting. You may even have to partially choke up the fixed air inlet, and if you find that this is the only thing which will make the engine start, you will have to fit a movable shutter so that the orifice in question can be partly closed off, if necessary, for starting purposes, and opened again when engine is running.

Flow of Petrol Impeded.

My twin-cylinder machine has recently developed a misfire, and it has also gradually got more sluggish at starting. The inlet valves are automatic, ignition by accumulator, and Longuemare carburetter. I have gone carefully over all wiring, adjusted coil tremblers, and made make and break contacts quite smooth and flat. When running the engine gives off loud backfires every fifty yards or so, and I have found that the back cylinder misfires the most. After injecting petrol through each compression tap, the engine starts readily, but gradually slows down unless I continually press the plunger of the carburetter, which causes the engine to go off at full speed, and the carburetter to flood. Compression is fairly good and inlet valves all right, except that I fancy back cylinder valve stem does not move so freely as the front one. Shall be glad of your assistance.—G.W.R.

It certainly appears from the symptoms you describe that insufficient petrol can get through the carburetter to feed both cylinders properly, and the backfires are caused by the excess of air. If you take down the carburetter and clean out carefully every crevice, not omitting the feed pipe and the gauzes in the union at the bottom, you will probably find a cause for the petrol stoppage. If one of the inlet valve stems is not free in the guide, you can cure this by the use of emery cloth.

High Consumption and Loss of Power.

I have a 3½ h.p. Excelsior motor bicycle with Longuemare carburetter, but cannot get more than thirty miles to the gallon of petrol. The spray has ten slots. Should I get better results if I fitted a new spray with six slots? Although 3½ h.p. I cannot mount hills without pedal assistance.—P.R., Bucks.

Your machine requires thoroughly "tuning up." The jet is undoubtedly too large, and we should recommend you to try one with six slots, using a smaller choke tube. The consumption of petrol should be about seventy or eighty miles to the gallon. The machine should go up any hill to be met with on the main roads. You must see that the valve springs, valves, piston rings, and compression are as good as can be before you can expect the machine to run really well.

Fitting a Sidecar and Attention to Twin Engine.

I am driving a twin-cylinder Minerva with rigid side-carriage, and should be much obliged if you would let me know how to test the wheel alignment? I should also be glad of any hints in getting the two cylinders to fire at the same speed. Could you say how often, under ordinary conditions, the engine should be oiled?—5050.

The best way to find if the wheels of the sidecar and bicycle are in alignment is to fix the sidecar in a vertical position with the bicycle, as nearly as possible; then get a length of twine or tape and measure the distance between the centre of the tyre on the sidecar and the centre of the tyre on the bicycle, taking your measurement first of all at the top of the tyres, then move the wheels round half a turn and repeat the measurement on the top and bottom of the sidecar wheel. If the measurements coincide you will know that everything is correct. You had better study "Motor Cycles and How to Manage Them," which will give you several hints with regard to tuning up the valves on the machine. The great thing is to get the valve springs of equal tension, and by carefully grinding the valves and attention to the piston rings to get as nearly as possible the same compression in both cylinders. Also, the ignition must be accu-

rately synchronised, and there is no better means of doing this than by using either a R.O.M. contact breaker or a high tension magneto. On a twin-cylinder machine give one charge of oil every six miles with a sidecar, and every ten miles when riding solus.

Sluggish Starting.

Could you help me with the starting of my 3 h.p. Fafnir-engined motor cycle? Whether hot or cold it is always some time before engine starts. If I descend a long incline with exhaust valve raised, by the time I get to the foot of incline the engine will not start for some time. It seems to me I cannot shut off enough air. The fixed air supply is rather large, about 1in. diameter. The machine runs very well otherwise. Fafnir carburetter, battery ignition.—H.C., Southend.

You might try fitting a shutter over the fixed air inlet so that it is partly closed before starting. This should get over the difficulty. Failing this, try a larger jet, but we imagine that our first suggestion will be successful.

Considering Purchasing a Two-speed Mount.

I am thinking of exchanging my Rex 1906 twin, with which I have been very well satisfied, for the Rex Modèle de Luxe 5½ h.p. twin with ball bearing engine, two-speed gear and Roc free engine clutch. Prior to finally deciding I should like your advice. I wish to use the motor cycle with Montgomery side carriage, which I have constantly done with satisfaction with my present mount; same will have to be fitted to the left hand side of motor cycle instead of the right as hitherto. (1.) Is the speed gear and clutch as fitted a satisfactory, simple, and strong combination for use with sidecarriage? (2.) Does it slow the machine, and is there any appreciable chance of same failing on the road? Has it also an appreciably long life? (3.) Can the machine be started anywhere by means of the low speed gear with the rider seated? (4.) I am thinking of having the twin tyres. Do these slow the machine? (5.) Do you consider that the ball bearings will render the engine so efficient that they will neutralise any retarding effect that the change-speed gear may exert?—E. P. Blois.

(1.) We feel sure you would find a ball bearing Rex engine with clutch and two-speed gear to be satisfactory. (2.) You lose a slight amount of power on the low speed but not on the high speed. Its life would depend on how often and carefully it is used. (3.) Yes, the machine could be started on almost any gradient. (4.) Twin tyres will, of course, have the effect of slowing the machine very slightly. (5.) There is no doubt that ball bearings render an engine highly efficient, but it is impossible to say if it would compensate for all loss of power on the low speed. Altogether, we think you would be wise to make the exchange.

How to Remove Engine Pulley.

I should be glad if you would tell me how to remove the pulley from my 3½ h.p. Triumph? I have had it soaking in paraffin for hours, and have tried the effect of four oak wedges between pulley and crank-case, but it has not made the slightest impression.—S.E.B., S.W.

Obtain two very large screwdrivers and get a friend to push them between the pulley and crankcase, as far as they will go without forcing them, then get him to apply slight pressure to lever the pulley outwards, and, at the same time, loosen the pulley nut, but do not remove it. While pressure is applied as above give the loosened nut on the shaft a sharp tap with a hammer, interposing a piece of brass or copper between hammer and nut; the pulley should then come off quite easily.

Difficulty with a Magneto.

Will you please give me some advice on the following subject: My machine is a 3 h.p. Singer, 1905, ignition, high tension Simms-Bosch magneto, driven by a chain from the 2 to 1 shaft. Last week whilst running the machine on the stand, I noticed for the first time sparks (electrical, I presume) discharged from the driving chain. The sparks were most prominent from the driven sprocket on the magneto shaft, alternately they would appear on the driving sprocket. What is the cause of this, leakage or resistance to the high tension wire to plug? I may mention that the weather at the time was very foggy and machine wet. The machine has been little used, and is in good condition. Do you think the magnets require remagnetising? The carburetter is within 1in. of the magneto sprocket. I fear ignition of vapour if it occurs again. This is my only trouble.—K 631.

It is rather difficult to account for the trouble, which may be due to a breakdown in the secondary winding. The question is, does the magneto fire properly? If this is the case, and the engine does not misfire, and a good spark is obtained at the plug, the trouble is due to a leakage which may conceivably be due to excessive wet or moisture causing a short circuit. It seems to us unlikely that the machine will run properly if excessive outside sparking is prevalent. Of course, if the winding is defective the armature will have to be rewound, which is rather an expensive job. If you wish to inspect the armature you must have ready a rectangular piece of iron at least ½in. thick, which will exactly fit between the poles, and this should be instantly inserted as soon as the armature is withdrawn. On examining the armature you will find what looks like a broken wire near one of the ends, but this is the safety spark gap. If the insulation is broken down it may be quite invisible until the winding is taken off, which is a job which the makers only can tackle. If the machine has been in constant use for three years the magnets may require re-magnetising, but we should recommend you first to thoroughly examine the contact breaker and the high tension carbon, spring, and terminal. If these and the carburetter are in good order, and yet the engine is difficult to start at slow speeds, the whole magneto had better be sent to the Simms-Bosch Co., 31, Store Street, Tottenham Court Road, W.C., for examination.

If W. Thomson will furnish his address and a stamped envelope a reply will be sent to his query.

Not the least advantage of a lightweight motor bicycle! The Viennese motor cyclist here shown uses a 1¾ h.p. Motosacoche

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'The Daily Telegraph," No 28, 1907.
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"The Scottish Cyclist," Nov. 20, 1907.
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"The Bazaar," Nov. 27, 1907.
The ROC should have a big future. A commendable move has been made by A. W. WALL in offering to fit their gear to any machine.

"The Irish Cyclist," Nov. 27, 1907.
Has met with considerable success.

"Work," Dec. 14, 1907.
The ROC is one of the simplest and most reliable—containing quite a number of good points.

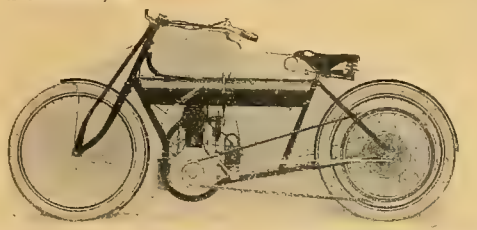
"The Motor Cycle," Dec. 11, 1907.
The ROC is already familiar. It is better than ever.

"The Motor Cycle," Jan. 1, 1908.
The ROC gear is considerably lighter, neater, and more adaptable to other makes of machines than any similar type of gear that we have had the opportunity of inspecting.

"Bicycling News," Nov. 27, 1907.
Very satisfactory and practical. ROC motor cycles have many distinctive features.

"Financier," Dec. 5, 1907.
Such autocycles as the ROC . . . . furnish typical exemplifications of the high standard of mechanical efficiency which motor cycles have already reached.

"C.T.C. Gazette," January, 1908.
Have introduced considerable improvements. The great feature is the clutch, etc.



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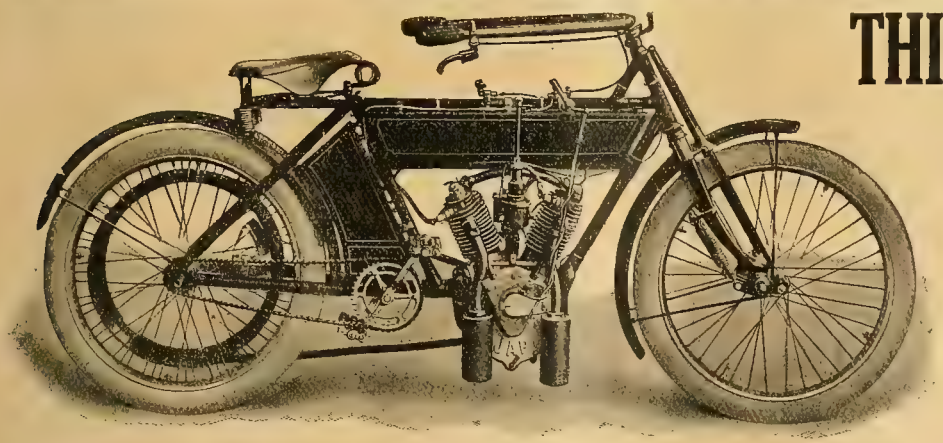

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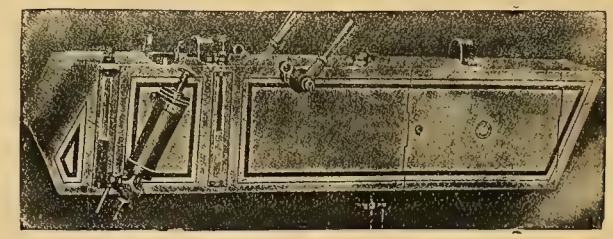

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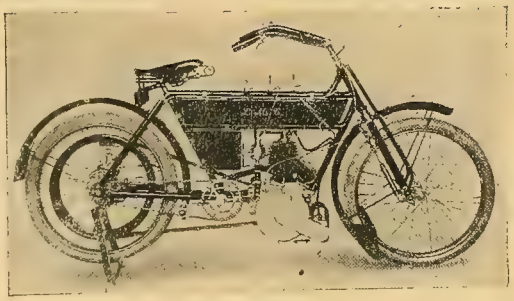

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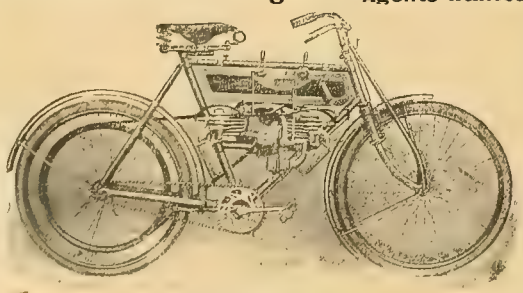

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CLUB NEWS.

Perth and District M.C.C.

A general meeting of the club will be held in the Windsor Restaurant, St. John Street, this (Wednesday) evening at eight. The committee specially ask all members to attend, several matters of considerable importance having to be decided.

Newcastle M.C.

Under the auspices of the above club Mr. William Dunn will deliver a lecture on "Motor Cycling as a Sport and Recreation," in the Lovaine Hall, Newcastle-on-Tyne, on Friday, the 31st January, at 8 p.m. Admission is by invitation ticket, which may be obtained by applying with a stamped and addressed envelope to the secretary, J. P. Robson, 119, Gloucester Road, Newcastle-on-Tyne. The lecture will be illustrated with 130 limelight views.

West Essex A.C.

The annual dinner was held on Thursday last at the Seven Kings Hotel, and was well attended. The president of the club, Mr. B. Foster Wickens, presided. Mr. F. Straight, of the Auto Cycle Union, and Mr. Rees Jeffreys, of the Motor Union, were among those present. The dinner was an unqualified success, the secretary (Mr. Baldwin) saying it was the best they had ever had. After the toast list had been gone through and the prizes won in 1907 competitions presented, the room was cleared and dancing indulged in until the small hours of the morning.

The Liverpool M.C.

The annual general meeting of the above club was held at the St. George's Restaurant, Redcross Street, on Wednesday last, Captain T. Clarke in the chair. A good number of members attended. It was decided to hold several important competitions during 1908. The election of officers for the year resulted as follows: Captain, Mr. T. Clarke; sub-captain, R. P. Rutherford; secretary and treasurer, E. L. Fehr; reporting secretary, J. D. Bethell; committee, Messrs. Heaton, Lea, Edge, Wright, Parsons, Pritchard, and Pickering. Local motor cyclists can obtain full particulars regarding membership from the secretary, Mr. E. L. Fehr, 22, Preeson's Row, Liverpool.

Lincolnshire M.C.C.

The members of the Lincolnshire M.C.C. have decided to accede to the influential requests for centres of the club at Louth, Stamford, Scunthorpe, and Frodingham. Motor cyclists residing in those districts should drop a line to the hon. sec. of the club, Mr. Wilkinson, 18, York Avenue, Lincoln. Suggestions would also be welcomed.

The club will be represented at the inquiry into the application for a speed limit for Colsterworth, which is to be held at Grantham on the 28th. Mr. C. Nelson, the honorary solicitor to the club, will appear, and the secretary of the club, and Mr. Mettham, the secretary of the Grantham Centre, will, with others, give evidence.

Sheffield and Hallamshire M.C.C.

The annual general meeting of this prosperous club was held at headquarters on Thursday evening, January 16th, Mr. J. H. Hall in the chair. A large number of members were present. After the minutes of the last meeting had been passed as read, and the accounts for the year passed, a long discussion took place regarding affiliation to the A.C.U., the meeting being practically unanimous in favour of affiliating, but as certain matters are not yet definitely settled between the A.C.U. and the R.A.C. it was decided to leave the matter over and call another meeting to consider the scheme in detail in a few weeks time. A new rule was passed admitting hon. members at an annual subscription of 2s. 6d., lady members also to be admitted upon payment of the same amount, and it was suggested that some special competitions be held for lady members during the coming summer. The following were elected officers for this year: President, Mr. John H. Hall; vice-presidents, Messrs. J. Haslam, W. Watts, H. Bisby, W. Hill, and Brooke Shaw; hon. secretary, Mr. T. F. Turner; trials secretary, Mr. Gould; hon. treasurer, Mr. W. Hill; committee, Messrs. Dakin, F. Dover, Vale, J. W. Ardern, F. Farrer, W. James, R. C. Honey, Kay, Sawer, J. A. Farrer, Tarrant, and Oliver; auditors, Messrs. C. Champion and Mr. Dakin.

Owing to a business appointment, Mr. Jno. Haslam has resigned the honorary secretaryship of the above club.

The Basingstoke and District M.C.

A paper was read before the above club entitled "The Manufacture of Steel and Iron," by Mr. P. Grover, on the 15th inst., illustrated by an excellent series of lantern slides. A short discussion took place afterwards, followed by votes of thanks to the lecturer and chairman, Mr. F. Williams. At the next meeting a debate "Two-cycle *v.* four-cycle Engines for Road Vehicles" will take place, Mr. R. K. Hubbard advocating the former, and Mr. R. J. Joice the latter. Mr. Geo. Watson, M.I.A.E., will read his promised paper, "The Development of Steam Vehicles for Passenger and Goods Transport," on Saturday, February 15th, to be illustrated with lantern pictures.

Newcastle and District M.C.C.

The annual dinner and presentation of prizes will be held at the Continental Restaurant, Grainger Street, Newcastle, on Thursday, January 30th, at 7.15 p.m. Tickets, 3s. 6d. each, on application to the hon. secretary, S. W. Carty, 32, St. Mary's Place, Newcastle. Mr. J. H. Hall, president of the Sheffield M.C.C., has kindly consented to take the chair, and it is expected that he will be supported by the following well-known representatives from other clubs: Mr. F. Straight, A.C.U.; Mr. A. G. Reynolds, Essex M.C.; Mr. A. J. Moorhouse and Mr. Butler, Manchester M.C.; Mr. Vint, Bradford M.C.C.; Mr. H. Wheater, Leeds M.C.C.; Mr. Walton, Hartlepool M.C.C.; Mr. Russell Jackson, Sunderland M.C.C.; Mr. Liddle, Middlesbrough M.C.C.; Mr. J. Van Hooydonk, M.C.C.; and Mr. G. J. Wilkinson, Lincolnshire M.C.C.

Sunderland and District M.C.C.

The annual general meeting of this club was held on the 15th inst. The resignation of the hon. sec. and treasurer, Mr. W. E. Russell Jackson, was received and accepted with regret. After the report of the past year had been read and adopted, the following members were elected to office for 1908: Chairman, Mr. W. E. R. Jackson; hon. treasurer, S. Wilson; committee, Messrs. M. Moore, W. F. Cross, J. Kirton, E. J. Tiffin, V. Tiffin, and J. Wood, together with the chairman, secretary, and treasurer. It was decided to reduce the subscription to 5s., which is now due. All subscriptions and communications for the present to be sent to S. Wilson, 6, Bower Street, Fulwell, Sunderland. There is every prospect of a good year, as several new members are joining, and it is hoped that there will be a good attendance at the next meeting, to be held on February 3rd, when the programme for the year will be discussed.

Manchester M.C.

This club held its annual general meeting on Thursday last, the 16th inst., at the Albion Hotel, Manchester, and the following officers were elected for 1908: President, A. J. Bell; vice-presidents, F. C. Hunt and J. Higginson, jun.; captains, H. W. Cranham and O. Gross; sub-captains, E. Jones and J. Fraser; treasurer, Percy Butler; secretary, A. J. Moorhouse.

A satisfactory balance-sheet was presented by the retiring treasurer, the club having a bank balance of over £180.

The programme for 1908 is very ambitious, and numerous competitions have already been arranged. During the evening a number of offers in the form of prizes were made by members, and it is intended to run separate classes for non-trade members in the various competitions.

The annual subscription for cycle members is 12s. 6d., which includes affiliation fee to the A.C.U. There is also an entrance fee of 5s.

The club now numbers about 250 members, and any motorists in the district who would like to become members will be welcomed. The new secretary's address is 36, Spring Gardens, where all communications should be addressed.

The Motor Union Conference.

Mr. F. Straight, secretary of the Auto Cycle Union, writes: "In the report of the conference of the provincial clubs convened by the Motor Union, which report appeared in several London daily newspapers, I see my name appeared as supporting the chairman, Mr. C. H. Dodd, thus implying that I was supporting the Motor Union. Will you grant me space to say that I was only present in my official capacity as secretary of the Auto Cycle Union, and in response to an invitation from the Motor Union to be present. Otherwise I took no official part in the meeting, and was only present to hear the arguments that were used."

Index to "The Motor Cycle."

A complete index to *The Motor Cycle* of 1907 is now ready, and a copy will be forwarded post free on receipt of 3d. in stamps. Subscribers will find a copy of the index enclosed with the present issue.

Difficulty in obtaining Petrol.

Among the batch of enquiries received last week was one from a motor cyclist in Arabia, who complains that he is unable to obtain petrol for his machine, principally because he requires it in such small quantities.

Another Non-stop and Hill Contest.

The Lewisham A.C. has under consideration another winter contest on the lines of its successful non-stop and timed hill-climb at Riverhill last February, which proved a severe trial even with the almost ideal conditions of roads and weather that prevailed. So far from there being any opposition, the necessary police permit was readily granted, and it will be recalled that the local police actually assisted at the last event.

Separate Class for Sidecars.

At present the actual venue, or the date, has not been decided. It is thought that early in March will be most suitable, as many riders receive delivery of their new machines by then. It is intended to include a class for sidecars as well as lightweights, both of which should fill well. The test is more arduous than the usual hill-climb. In last year's event more than one engine ran hot after the previous stiff pull from the outskirts of Tonbridge.

Hill-climbing Competitions.

A writer in a sixpenny illustrated weekly, commenting on the action of the R.A.C. in prohibiting the holding of hill-climbs, says: "The motor cyclists also do not like to be deprived of their sport, but in their case the prohibition was, if anything, more necessary than in the case of motor cars, and the discontinuance of the hill-climbing competitions will perhaps have the beneficial effect of lessening the demand for ridiculously high-powered, unwieldy motor cycles, and bringing about a revulsion in favour of the rational lightweight motor bicycle of moderate power." Apparently, the writer imagines that such contests are confined to "high-powered unwieldy motor cycles" instead of standard touring machines of but moderate power. He adds, "There will, of course, still be occasional hill-climbing competitions held in such favoured districts as Fernhurst."

Substitute for Petrol.

The Stockholm correspondent of the *Evening Standard* states that a Swede claims to have discovered a substitute for petrol, which is both cheaper and gives more power.

The A.C.U. Quarterly Trials.

In future, Quarterly Trials riders will be timed on Amersham Hill as well as Dashwood. Particulars of a further competition in connection with these trials are given on page 59.

Italian Motor Cycle Race.

On Sunday next the Critérium de Voiturettes and Coupe de l'Exposition Trial for motor cycles, organised by the A.C. of Turin and the Moto Club of Italy, will take place.

A Mistaken Idea.

An idea is now going the round of motor cycle circles that the Tourist Trophy Race is a petrol consumption test. Now, it is in reality nothing of the kind. In a consumption trial the object is to finish with as much fuel left as possible—in other words, to use as little as possible. In the T.T. Race, on the other hand, the object is to drive as fast as possible without running short of petrol, the exact opposite. There is only one thing worse than finishing with too large a residue, and that is to run out of fuel. If a man is told to run at the rate of 100 miles to the gallon, and finishes, say, fifth on the list, after having consumed petrol at the rate of 150 miles to the gallon, he has done badly, since it is clearly proved that he has driven too slowly, and has misjudged his allowance hopelessly. Even if the winner has a large residue left in his tank, it merely bears witness to the fact that he could have travelled a great deal faster. In a word, the object of the race is to drive as fast as possible and have as little surplus fuel as possible at the finish.

Legion of Frontiersmen.

The London Command of the Legion of Frontiersmen under Lieut.-Col. Driscoll, D.S.O., is now forming a motor cyclists' section. Motor cyclists who are desirous of joining will be able to obtain all particulars on application to Capt. A. Arkell-Hardwick, O.C.B. Squadron, at the headquarters, 7, John Street, Adelphi, W.C.

Miss Dorothy Smith, of Cambridge, a recent convert to motor cycling. The 3 h.p. Advance on which she is seated previously belonged to Mrs. Edward Kennard. Miss Smith was introduced to Mrs. Kennard by Miss Muriel Hind.

Proposed Speed Limit at Belfast.

The Belfast City Council have made an application for a ten miles speed limit on all roads through the city. An inquiry is to be held to-day (Wednesday) at Dublin.

Money Lying Idle.

It is a curious fact that the money collected by the various county and borough authorities for the registration of motor cars and motor cycles is not being put to any use for any particular purpose, but is lying idle on one side. It is certainly a pity that the Act did not state what this money was to be used for, but perhaps some day the local authorities may be induced to spend some of it in improving the roads.

Speed Limit on Swan Hill.

The ten miles limit that will shortly come into force on Swan Hill, on the direct road from Beckenham to Bromley, certainly appears a somewhat unnecessary restriction, for apart from the swan neck bend from which it takes its name, the hill has a part gradient of 1 in 8. The only accidents have been to pedal cyclists losing control of their machines, two being fatal. The hill is easily avoided by taking the right hand road at Shortlands Station, and the equally stiff ascent on to the London Road.

Motor Cyclists should Combine.

Mr. A. Candler, the hon. secretary of the Motor Cycling Club, will move a resolution on behalf of the executive at the annual general meeting, "That in the opinion of this meeting of members of the Motor Cycling Club, affiliation to the Auto Cycle Union should be continued during 1908." In his report to the members Mr. Candler says, "It is imperatively necessary that all motor cyclists should combine together for protecting their interests and securing the proper putting of the motor cyclists' case when the new Motor Car Act comes up for discussion."

"The Motor Cycle" Buyers' Guide.

As in 1906, we shall shortly publish a complete list of motor cycles, including passenger machines, at present on the British market. A full specification and price will be given of each machine, so that readers who are hesitating over the purchase of a new mount can compare the merits of each one with a minimum amount of trouble. February 12th is the date on which this useful guide will be published.

Financial Position of Union.

The Motor U... a very strong financial positi... ne present time the assets of ... exceed £10.000, the bulk of ...sists of Trustee securities an... he revenue of the Union for ...hcoming year is estimated ... than £8,000, and of this am... 00 has already been received. ...is are entirely under the cont... mmittee, upon which all mer... epresented.

Proposed Speed Limit at Kendal.

An inquiry into the application made by the Kendal Town Council to the L.G.B. for a speed limit of eight miles per hour was held on the 7th inst. at the Town Hall, Kendal. The speed limit was asked for, not only on certain narrow places in the borough, but on the whole length of the main roads through the town, over three miles in all. The application was opposed by Mr. W. Rees Jeffreys for the R.A.C. and Motor Union, who called upon several local motorists and a motor cyclist to support his opposition. The decision of the L.G.B. will be announced shortly.

The 1908 Tourist Trophy Race.

The Tourist Trophy Race for Motor Cycles will be held in the Isle of Man next October. The Competitions Sub-Committee of the Auto Cycle Union recommend that the race be repeated on the petrol consumption basis, but that one gallon of spirit for every 100 miles be allowed for the single-cylinder machines, and one gallon every eighty miles for the twin-cylinder. Last year the petrol allowance was ninety miles per gallon for single cylinder, and seventy-five miles per gallon for twin-cylinder machines.

FUTURE EVENTS.

—:o:—

Jan. 22—Southend and District M.C. Annual General Meeting.
„ 24 to Feb. 1—Scottish Motor Show, Waverley Market, Edinburgh.
„ 25—Auto Cycle Union Quarterly Trial.
„ 27—Motor Cycling Club Annual General Meeting.
„ 30—Newcastle and District M.C.C. Annual Dinner.
Feb. 21-29—Manchester Motor Car Show, Belle Vue, Manchester.
„ 15—A.C.U. Fifth Annual Dinner.
„ 15—A.C.U. Council Meeting.
„ 18—Motor Cycling Club Bohemian Concert.
Mar. 21-28—Cordingley's Motor Show, Agricultural Hall.
April ——A.C.U. Quarterly Trial.
May 4-9—Auto Cycle Club de France Reliability Trials for Motor Cycles and Voiturettes. Total distance nearly 1,000 miles.

Henri Cissac as Car Driver.

It is a remarkable fact, but nevertheless true, that nearly all the principal motor car drivers were in their earlier days exponents of either the motor bicycle or motor tricycle, and now comes to hand the news that Cissac, whose wonderful riding in this country at Brighton and Blackpool is still fresh in our memories, will drive a racing car in the Grand Prix. Cissac, as a motor cyclist, has perhaps a record unique in the annals of the sport; he was one of the first to reduce cycle pacemaking to a fine art. So perfectly did his machines run in the earlier days when breakdowns were the rule rather than the exception, that a good cyclist would pay him practically anything he demanded to secure his services. In those days Cissac was always an exponent of the house of Peugeot, but after the severe accident to Lanfranchi, which cost the firm a considerable amount of money, they decided to abstain from further track racing, and confine their attentions to road events and straightaway record rides. Cissac continued with the old firm, and it was not till last year that he left them to take up a position with the Alcyons to handle their racing voiturettes. This year, however, Cissac might be said to have reached the tip-top of the tree, for he will be representing the old-established firm of Panhard-Levassor in the Grand Prix. It will be interesting to watch the performance of this old-time champion of the motor cycle in such an important event.

Lamps for Motor Cycles.

On page 1038, issue of December 25th, we published a letter signed H. Rottenburg on the subject of lamps. In the letter he mentioned a firm who exhibited a motor bicycle lamp at the Olympia Show, but owing to a misprint this was given as the United Motor Industries, Ltd. It should have been the Imperial Motor Industries, Ltd., of 15, Castle Street, E., Oxford Street.

A Motor Cycle Tractor.

Writing to A. W. Wall, Ltd., under date of the 9th inst., Mr. C. A. Palmer says that he recently made an excellent test of the Roc two-speed gear. A friend of his owned a tricar which has lately been fitted with a new piston, and the latter being a rather tight fit, it was found impossible to start the machine in the ordinary way. Mr. Palmer, who owns a twin-cylinder Roc motor bicycle with change-speed gear, was called to the rescue, and he attached a rope to the tricar and towed it up a hill having a gradient of 1 in 7½ to 1 in 8. The total weight of the tricar, motor bicycle, and two passengers was 1,028 lbs. The fact of the gear standing the pull of the 5 h.p. engine, and a load of nearly half a ton, is a sufficient proof of the quality and strength of the working parts.

Ripley Roadmenders' Fund.

The Auto Cycle Union, which has undertaken the arrangements for the dinner hitherto given by the Bath Road Club to the Ripley Roadmenders, has up to the present received the following donations:

	£	s.	d.
Mr. N. H. Illingworth ...	0	4	6
Mr. J. W. Stocks ...	1	1	0
Mr. S. F. Edge	1	1	0
Kent A.C.	1	1	0
Miss Hind	0	5	0
Mr. S. G. Longworth ...	0	5	0
Mr. John H. Hall ...	0	10	6
	£4	8	0

The Royal A.C. has kindly consented to present packets of tea and tobacco to each of the men. Contributions to the fund should be sent to Mr. F. Straight, 18, Down Street, Piccadilly, W., as early as possible.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 52*)

TYRE REPAIRS.

148. First inspect cover for nail or other instrument of puncture. If found, mark side of tyre with indelible pencil.

If no sign of puncture, test valve before proceeding further. Remove cap, and put saliva on tip, watching for bubbles; or turn wheel until valve is uppermost, and immerse stem in tumbler of water. If no leak at valve, and no nail in cover, blow tyre up hard, listen with ear close to tyre for hiss of escaping air, and mark tyre with pencil as nearly as you can.

Remove cover, remembering there is a right and a wrong side to remove, with flap covers such as the Clincher. If puncture is in rear wheel the stand can be used; if in front, do your best to find a box, brick, or stone to place beneath engine, so that rim may be clear of ground for the replacing of cover.

Cover having one edge free, remove tube, but if site of puncture be known, do not remove more than that foot of tube, in which puncture is central. But if tube be endless, and you have a spare butt-ender, cut tube in half opposite valve, put in spare, and send old tube to tyre makers to be fitted with detachable joint. If no spare is carried, tube must be repaired *in situ*, as follows:

Before detaching edge of cover, brush all loose dust off rim, etc., or some of it will get in cover and chafe tyre.

Having exposed tube, dip rag in petrol and clean off grey deposit. Roughen with sandpaper when clean. Wipe suitable patch with petrol and sandpaper it. Solution wrong side of patch and stick it on inflator barrel. Solution patch and tube with a *thin* coat, covering tube to a wider extent than patch will occupy. *Let the solution dry till it has lost all appearance of brightness.* (This is most important; the fatal word "tacky" contained in most repair instructions has misled thousands of motor cyclists into applying patches too soon.) If there is time, give a second and third coat of solution, letting each dry well, and keeping them as thin and filmy as possible. If in a great hurry, either be content with one coat, or else dry them artificially by flaring them momentarily with a lighted match, and then blowing out. When solution is really dry apply patch, being careful not to touch its business side with the fingers; rub and mould it well into position, sternly curbing all tendencies to curl at the edges. Dry the top of patch and neighbourhood of tube with French chalk. Give the patch as long as possible to dry.

Meantime, attend to cover, seeking place where nail entered, and on reaching home clean the hole with petrol or benzine, and fill with tyre stopping. Rub French chalk over entire inner side of cover, and with a damp rag mop out all dirt.

Replace tube, making certain it is free from twists. Insert valve through its hole first, screwing on locknut only far enough to admit of valve parts being replaced. Slightly inflate tube. Finish replacing cover, beginning with part around valve. When cover is in again, press all security bolts and the valve well up into it. If accurately replaced they will easily press up into tyre, and the slight air in tube will immediately force them out again when released. If any failure in this, whip off cover at the point and examine. When cover is on, get behind rear wheel, one leg each side of it, and roll cover sideways with the hands. when the bead will be pressed away from rim, and you may ascertain if tube is nipped anywhere. Finish inflating, and proceed.

RUSTY RIMS.

149. Rust is very bad for the fabric of tyres, and the enamel is bound to chip off the rim when metal levers are used. Therefore, after a tyre has been removed half a dozen times with levers, it is wise to repaint the rims.

DRIVING ON SOFT TYRES.

150. For economy's sake, both tyres should be kept pumped hard. Both cover and tube feel the sharp edges of the rim if driven soft, and there is a greater chance of puncturing both sides of the tube instead of one.

(To be continued.)

THE A.C.U. QUARTERLY TRIAL.

Excellent support has been received for the Quarterly Trial to be held on Saturday next from Uxbridge to Banbury and back. Competitors will be timed up both Dashwood and Amersham Hills. The following is a list of the entries received up to the time of going to press:

Entrant.	Machine.	No. of Cys.	Bore and Stroke	Ignition.	Rider.
	h.p.				
H. and A. Dufaux	1¼ La Motosacoche	1	62×70	Plain coil	W. Smith
H. and A. Dufaux	1¼ La Motosacoche	1	62×70	„	J. V. Robinson
Fairy Motor Co. ..	2¼ Fairy.....	2	54×57	„	J. P. Beck
The Moto Rêve Co.	2 Moto Rêve....	2	50×70	Magneto	G. L. Fletcher
Triumph Cycle Co.	3½ Triumph	1	84×86	„	J. Marshall
W. G. McMinnies..	3½ Triumph	1	84×86	„	Entrant
P. H. Trotman ...	3½ Triumph	1	82×86	„	„
A. D. Draper	3 Triumph	1	78×76	„	„
W. H. Wells	3½ Vindec-Special	1	80×98	„	„
F. C. Dee	5 Vindec-Special	2	75×76	„	„
A. Stanley Phillips	5 Vindec-Special	2	75×76	„	„
Miss Muriel Hind	5 Rex	2	76×80	„	„
F. W. Applebee ..	3½ Rex	1	82×89	„	„
O. Van Saal	5½ Phänomen	2	74×84	„	J. Stuart Shaw
Zenith Motors, Ltd.	3½ Zenith	1	80×80	Tremb. coil	F. W. Barnes
Zenith Motors, Ltd.	6 Zenith	2	76×95	„	W. G. Bower
S. Browne	6 Lurquin-Coudert	2	80×80	R.O.M. synchron.	Entrant
A. W. Browne	6 Lurquin-Coudert*	2	80×80	„	„
R. O. Mitchell	5 Vindec-Special	2	75×76	„	„
Rex Motor Mfg. Co.	3½ Rex	1	82×89	Magneto	G. Lee Evans
N.S.U. Co.	6 N.S.U.	2	75×90	„	M. Geiger
E. J. Browning ...	4 N.S.U.	2	64×85	„	Entrant
Glynn Rowden....	3½ Bat	1	85×85	Plain coil	„
H. J. Clarke	5 Rex	2	76×81	R.O.M. synchron.	„
	Passenger Machines.				
Wilbur Gunn	10 Lagonda	2	90×96	Plain coil	Entrant
E. W. Haswell ...	6 N.S.U.*	2	75×90	Magneto	Entrant
W. M. Partridge ..	6 N.S.U.*	2	75×90	„	„

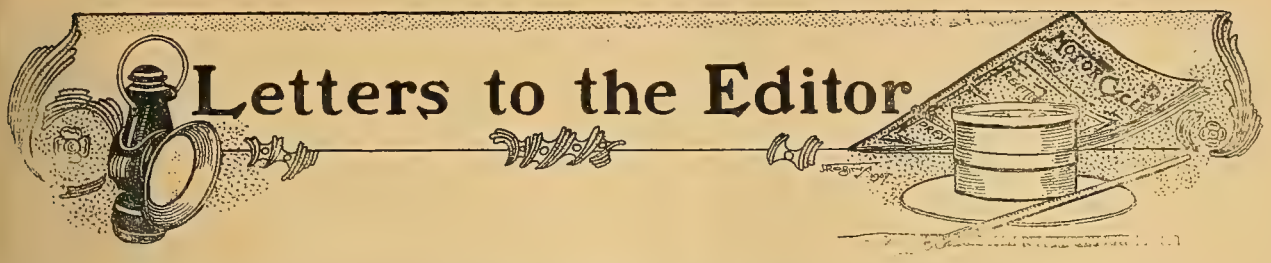
* With side-car empty.

* With side-car.

Mr. A. Drew, 74, Conybere Street, Birmingham, points out that the first and second machines ridden in the Bombay-Poona motor cycle trials, described on pages 44-5 last week, were fitted with Druid spring forks, of which he is the maker. Mr. P. Stewart made best time on a 3½ h.p. Riley, Mr. S. Peck coming next on a 3½ h.p. Norton.

A sample of a pulley drawer which should be very useful for removing obstinate pulleys from the engine shaft has reached us from Mr. W. Smith, 268, Galton Road, Bearwood, Birmingham. It consists of a stout steel dog with jaws to fit the V groove of the pulley. In the centre of the dog is a strong bolt with hexagon head, drilled for a short tommy bar. The article is marketed at a very moderate price, and will be found a useful adjunct to any motor cyclist's kit of tools.

There were three motor cycle entries in the South Indian Motor Union Reliability Trials, which commenced on December 26th. They were: Oakes and Co. (1¼ h.p. Motosacoche), F. Chatterton (1¾ h.p. F.N.), and V. Hutchinson (3½ h.p. four-cylinder F.N.) The first day's run was to Katpadi—ninety-one miles. On the second day there was a hill-climbing competition, and the four-cylinder F.N. easily made fastest time of cars and motor cycles. The trials extended over three days, the total distance covered being about 322 miles. The Motosacoche rider was disqualified, Mr. Chatterton lost marks, and Mr. Hutchinson made a non-stop run.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Glen Finnart.

[3063.]—Mr. Maitland being anxious to witness my attempt to climb Glen Finnart, I shall be pleased to make arrangements with him, and will be obliged if you will kindly put us in communication with one another.

HUGH GIBSON.

[A letter addressed to Mr. Maitland, c/o the Editor, *The Motor Cycle*, will be reforwarded.—ED.]

A Warning.

[3064.]—May I have a little space to warn readers of *The Motor Cycle* to be careful before paying for tyre covers sent on approval. I wrote a week or so back to a firm of tyre dealers asking for price and section of their 2½in. motor cycle covers. By return of post came an invoice for two covers they had sent as a speculation. When these arrived I immediately noticed the price was, although cheap, much more than the same goods can be purchased for in the ordinary course. The worst is to follow. Although both were marked 28 × 2½, one was 650 × 65, and the other 28 × 2¼. Does anyone know if these cheap covers wear fairly well when they are a correct fit? B 1604.

Cross Road Dangers.

[3065.]—On reading 2,995's letter on cross road dangers, I beg to say that I entirely disagree with him with regard to silent motor bicycles being the most dangerous. It stands to reason that a man on a noisy machine cannot hear another noisy or silent vehicle coming, but if both machines are silent and the drivers take proper precautions and sound their horns and sirens at corners, no danger would be incurred at all.

He also says that a complaint would be made about the use of horns and sirens. I again must disagree with him. If the rider had to constantly sound his horn, it would not make anything like the continual and abominable noise of the *average* motor cycle.

In my opinion, had the late Major-General Sir H. E. Colvile's machine been perfectly silent, he would have heard the approaching car's horn, and no accident would have happened. NORBURY.

Sidecars.

[3066.]—In your issue of December 18th I read with interest a letter from Mr. W. Montgomery, in which he accepts a challenge to exhibit the merits of his flexible sidecar, and shall be most anxious to see the result.

My own experience with this type of sidecar, though very short, is hardly a pleasant one, having with passenger skidded five times in rapid succession, each time a complete quarter circle, in riding over greasy setts near Manchester.

W. R. CUNLIFFE.

[Mr. Cunliffe has evidently got a sidecar with flexible joints, and without the latest non-skid attachments mentioned in these pages.—ED.]

[3067.]—In reply to Mr. Montgomery's letter in the issue of January 15th, might I point out that that gentleman accepted my challenge on the conditions stated. At the time that I threw this out he was selling sidecars not fitted with his new non-skidding device. Mr. Montgomery knows full well that it was on this that my challenge was based.

How long he had been experimenting with this device is a matter of no concern to me, but in persisting in wanting to ride me with this fitted, he must not blame the motor cycling public or myself for taking it as an admission that the rigid sidecar is far and away the best in grease, which is really the only great point I ever claimed for it.

Unless Mr. Montgomery will ride me under the conditions named, so far as I am concerned this discussion is closed.

JNO. HASLAM.

[3068.]—I have been much interested in the discussion appearing in your pages on this subject for the past few weeks, as I also am a sidecarist; in fact, I have never really been anything else.

The discussion as to the merits or otherwise of the two usual types, viz., rigid and flexible, has so far referred to the sidecars having one wheel only. I have looked each week for some expression of opinion upon the merits of the two-wheeled sidecar, but so far have been disappointed.

Some eighteen months ago I was smitten with the motor fever, and pretty badly too. What must I get? A small car was, of course, the desideratum, but too expensive in both first cost and upkeep. The tricar did not appeal to me either from the point of view of sociability or the necessity of having to look for three tracks when driving. The trailer was out of the question, and I must have some means of taking my wife out for a spin, so the only thing left was a sidecar. From an engineering point of view, the ordinary sidecar did not appeal to me, and on looking through the advertisement columns of *The Motor Cycle* I saw the Autophaeton. I liked the idea of this, made further enquiries, and finally bought one, together with a 5½ h.p. Rex twin.

My previous experience in motoring had been confined to occasional rides in friends' cars, and one ride on a friendly motorist's 2¾ h.p. Hobart just prior to receiving delivery of my own twin.

I rode my Rex for about a month before fixing sidecar, in order to familiarise myself with the machine, with the usual beginner's tribulations. Then I fixed the sidecar. This was fixed up for me by a motor firm in Doncaster, I having ridden over on my solo mount one Saturday afternoon to have this done. As I was dubious about riding it alone home, I had sent my gardener on by train to meet me in Doncaster, in order to accompany me home. The fixing took till 7 p.m., and we started off for a forty miles ride. I had never ridden a tricycle before, but from the very start I had no difficulty at all in steering this combination, my initial start being from the centre of the town on a crowded night, and I a perfect ignoramus of motoring only four weeks previously. This, I think, speaks wonders for the steering of the four-wheeled sidecar and bicycle. My great difficulty, of course, was the lack of a free engine and speed gear. I had an Osborne four-speed gear fitted, which has answered very well indeed except for belts, but after adopting the Stanley Dermatine these troubles disappeared. I have had a small seat fitted facing the one for the ordinary passenger, and very often carry an extra passenger in the shape of a boy of eight, making my total passenger weight 17 stones. With this weight I this year toured in the Lake District, and was only once stuck at a hill, viz., Dunmail Raise, and this I surmounted by running alongside for about one hundred yards near the top.

As regards license, the Inland Revenue authorities in this district have decreed that it is necessary to pay two licenses of 15s. each.

Finally, as regards strain on frame of machine, this must be very slight. The connection is the three-point one. At the front the casting carrying the front of sidecar is clamped by means of a wrought-iron clamp $\frac{3}{16}$in. thick by 2½in. wide

to the steering head, and the clamp has not even rubbed off the enamel of the frame at this point. The second point is by a tension rod from back axle to seat-pillar. Once the nut holding this shook off, and the amount of movement, though quite free to move, was less than ¼in. Last, the back axle on my machine is fixed by a plate with hole fitting over the back spindle of cycle wheel. I have the back spindle out now before me, and it shows not the slightest sign of strain. The steering is so easy that, provided the front wheels are set parallel (which once properly done never seems to alter), one can ride "hands off" for two or three hundred yards.

The latest pattern of the Auto-phaeton is found in the Lowen patent sidecar, and this bristles with improvements. I have not seen one of these latest, but from illustrations it looks all right, and I understand the only objection to my own pattern, viz., slight difficulty of detaching or otherwise, has been overcome.

I have no interest in any of the above-named articles whatever except that of a satisfied user. W. J. BROOKE.

Chains.

[3069.]—After reading most of your correspondent "Road Rider's" "Hints and Tips for Motor Cyclists," I cannot help thinking that his experience on some subjects must be very limited. The one on "Chains" (No. 111) makes me write this, as I consider most of his eleven reasons do not agree with my experience, and are not trustworthy information for motor cyclists in general.

I take each for what it is worth, and hope you will find room to publish this letter. I must add that I have had six years' experience with belts and three years with chains, the last three on a very heavy 5 h.p. twin machine.

(1.) "It (*i.e.*, a chain) is more expensive."
A chain costs 18s., a belt from 25s. to 35s. [Good belts can be bought at about 1s. 6d. a foot.—ED.]

(2.) "It collects more dirt."
A chain simply churns up dirt on itself, but a belt collects it on its large surface, and throws it all over the rider.

(3.) "Under some conditions it wears much more quickly than a belt."
A chain lasts 7,000 to 8,000 miles. A belt lasts 1,000 to 2,000 miles.

(4.) "It is much harder to keep clean."
A moot point; anyhow, a chain works satisfactorily when dirty, and a belt will not work at all.

(5.) "A duffer can less easily adjust it."

(6.) "If any part of it fails there will probably be a smash."
Very probably, but also the same with a belt, which is more likely to break.

(7.) "If the engine jams, the rider may be thrown."
True, and equally true with a belt; but how often does an engine jam?

(8.) "It shakes more than a belt."
True.

(9.) "With a bad driver it damages the engine."
Also possible with a belt, and more due to the driver than to the transmission.

(10.) "It causes side-slip."
Perhaps slightly more than a belt.

(11.) "It is not more efficient."
I have not made a test, but have always believed a chain to be far more efficient than a belt, which has to be wedged in and out of the rim all the time. P 1943.

Lubrication.

[3070.]—I was pleased to see your leaderette on lubrication, and quite agree with you that the present system is a haphazard way of getting the oil to the proper place at the right time.

I have studied the petrol engine from its infancy, and have always had a distaste for the "splash system" of cylinder lubrication, and, as motors have been built to a certain degree on arguments, I beg to offer a suggestion, which, in my opinion, would alleviate the too well-known trouble of faulty lubrication.

I suggest that at the base of the cylinder, on the top of the crank case, there should be an oil well, say, ⅛in. in depth, and the same width, the bottom of the piston to dip into this at every stroke, the oil to be fed direct to this well by a special pipe, which could be coupled to a two-way tap on the pump. There is no particular necessity for a drip feed lubricator, as the pump can be charged with oil, and if turned to the well, it would gradually empty itself. Of course, it is advisable to retain oil in the crank chamber, but the amount need only be small.

I think that the main difficulty of the oil working past rings can be overcome nearly entirely by fitting an efficient release valve to crank chamber. We are sadly in need of a real good release valve. I have made dozens of these myself, for experiment sake, but have not yet found the right thing which can be adapted to any engine.

PERCY H. DUDLEY.

[3071.]—I have read with much interest your leaderette on lubrication, and consider that, if motor cycle crank chamber tops were made the same bore as the cylinder instead of the usual narrow slot (only sufficient to clear the connecting rod) we should hear fewer complaints of seized pistons, gummed up valves, etc.

I have constructed two motor cycle engines more for amusement than anything else, and I bored the top of the crank case a clear fit to the cylinders which were let in about half an inch to secure alignment, and I have never had any trouble from the oil getting past the piston for the simple reason that a lower level of oil can be maintained in the crank case, and it enters the cylinder at a much lower revolution than when the splash plate is fitted. Then, again, if it is necessary to give more oil on reaching a hill, that oil reaches the piston immediately, not ten minutes afterwards. With a cylinder fitted as I have suggested, and the piston made longer than usual—in fact, coming to within $\frac{1}{16}$in. of the flywheels—we get perfect cylinder lubrication without having the crank case half full of oil.

Being a firm believer in the automatically operated inlet valves without suffering from "stuck up" inlets, I can guarantee this principle to answer admirably, and I have improved several engines of the "narrow slot" type by considerably enlarging the original aperture.

J. STUART SHAW.

Lamps.

[3072.]—There have been one or two letters from correspondents on the subject of better and more powerful lamps for motor cycles. None of them seem to have considered the question of shading the eyes from the glare of such lamps. It is almost impossible to prevent some part of a lamp reflecting light so that it appears as a bright part when seen from the saddle. This causes the retina of the eye to contract, and thus distant and faintly illuminated parts of the road cannot be seen. Even if the lamp presents no bright parts, the road just in front of the machine is very brightly illuminated, and has the same effect. I used to employ a shade under the eyes to prevent the lamp and road just in front of the machine being seen, but goggles can now be obtained with shades attached, and anyone who will give these a trial will agree with me that one can see nearly fifty per cent. further with them than without. Of course, some lamps are worse than others, but all have this inherent defect.

H. ROTTENBURG.

Electric Vulcanisers.

[3073.]—I read with interest the letter No. 3042 on "Electric Vulcanisers" in *The Motor Cycle* of January 8th.

I presume your correspondents refer to the new heat insulated type, of which the present writer is the inventor, and of which the sole right to manufacture and vend has been conferred on Messrs. Turco, Ltd., Manchester, who at present market the vulcaniser in two sizes. The small size consumes current at the rate of two and a quarter ampères at four volts, thus taking one and one-eighth ampère hours for a vulcanised repair occupying half an hour. This is hardly to be regarded as too great a drain on a twenty ampère hour cell used occasionally for vulcanising.

Your correspondents, however, are wise in marketing a special vulcanising battery. The larger size vulcaniser consumes four ampères at eight volts, and should, therefore, not be used from accumulators of less capacity than forty ampère hours.

FREDERICK J. GORNALL.

MOTOR BICYCLES FOR SALE.

2½ h.p. N.S.U.; £18 18s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5-6 h.p. 50 Guinea Rex, spring forks, cantilever seat; sale or exchange.—Below.

2¾ h.p. Stevens, 26in. wheels, perfect order; sale or exchange.—Gittins, Billing, Oswestry.

2½ h.p. Excelsior, Palmer tyres, Longuemare; £12 10s.—123, Graham Road, Dalston.

2½ h.p. M.M.C., vertical engine; £12 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2½ h.p. Griffon, in splendid running order and condition, good hill-climber; £13 13s.

4½ h.p. Phœnix Trimo, free engine, two speeds, coach built forecar, Palmer tyres; £15 15s.

2 h.p. Ormonde, everything in good order, starts easily and runs smoothly; price £5 10s.—Baker, 35, Friar Street, Reading.

5 h.p. Vindec Special, 1907, garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

6½ h.p. Twin Rex, Model de Luxe, perfect condition; £28.—Lees, King's Garage, Cambridge.

2½ h.p. Triumph Motor Cycle, light model; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2 h.p. Minerva, splendid condition, spares; £10, or nearest offer.—46, Windsor Road, Ilford.

2½ h.p. Minerva; £15; very reliable machine. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

N.S.U., 4 h.p., twin, magneto, good order; £25. — Particulars, Rook, Selby Terrace, Maryport.

4 h.p. Twin-cylinder Hamilton, very fast; £13 15s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

TRIUMPH Motor Cycles, 1908; immediate delivery.—Morriss, 139a, Finchley Road, Swiss Cottage, N.W.

5 h.p. Vindec Special, Truffault, very fast machine; £27 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3⅜ h.p. Rex, perfect condition, studded tyre, grand climber; £14.—Richards, Cross Thomas Street, Merthyr.

2¾ h.p. Vindec Special, F.N. engine, very reliable; £14 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

1908 L.H.O., 5-6 h.p., twin, Chater-Lea No. 6 frame, ridden only with trial tyres; £30.—Hodson, Motor Work, Oundle.

FOUR-CYLINDER F.N., magneto, condition excellent; £18 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Clyde, splendid order, horn, tools, lamp (separate generator); £12.—Clark, George Street, Ryde, Isle of Wight.

3 h.p. Triumph, ball bearing engine; £18 18s., great bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2½ h.p. Minerva, new last October, and leather suit; 25 guineas; owner going abroad.—6, Burlington Road, Tottenham.

7 h.p. Peugeot, in No. 6 Chater-Lea frame; £18 10s.; oportunity.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Werner, good running order, accessories; no reasonable offer refused. — Knight, 19, Elder Avenue, Crouch End.

2½ h.p. No. 1 Ariel Motor Cycle, in new condition; £15; new arrival. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

2 h.p. Motor Cycle, spray, guaranteed perfect condition, including numbers; £6.—67, Borthwick Road, Leytonstone, London.

2½ h.p. Spring Frame Bat, new machine; £25; exchange arranged. —Wauchope's, 9, Shoe Lane, Fleet Street, London.

YOU WANT POWER

6 h.p. TWIN REX. Spring forks, low built, long bars, foot brake. Suitable for sidecar.

£6 and a decent machine, 3½ h.p., secures above.

BE UP TO DATE.

Your high-built mount and about £6 secures a 3½ h.p. REX, fitted with spring forks, long bars, foot brake, etc. Climb anything, and looks smart.

SPECIAL OFFER. £6 and your under-powered, under-sized 2 h.p. joker secures a 3½ h.p. light and low REX, fitted with spring forks, 26in. wheels, foot brake, 20in. frame. Climb owt.

We want £5 19s. 6d. and your push cycle for a 3½ h.p. REX, vertical engine, cost £50. Climb anything.

CASH, CREDIT, OR EXCHANGE FOR THESE.

4½ h.p. four-cylinder DURKOPP, spring forks	£24	10	
5½ h.p. REX DE LUX, black finish	32	10	
5 h.p. TWIN REX, shop-soiled, 2¼in. tyres	23	10	
3½ h.p. REX (1907), shop-soiled, 2¼in. tyres	19	19	
3½ h.p. REX, magneto, adjustable pulley	18	18	
3½ h.p. TRIUMPH (1907), Riches' butted tubes	32	10	
3½ h.p. MINERVA (1907), shop-soiled	23	10	
3½ h.p. QUADRANT (1907), spring forks	25	10	
3½ h.p. BROWN, magneto, non-skid	22	10	
3½ h.p. N.S.U., magneto, smart, stand	22	10	
Four-cylinder F.N., magneto, spring forks	22	10	
4 h.p. STEVENS, low built, Bat pattern	14	14	
3 h.p. RALEIGH, low built, two speeds	12	12	
TWIN CLEMENT-GARRARD, two speeds, 26in. wheels	18	18	
5 h.p. TWIN KERRY, long bars	19	19	
5 h.p. TWIN G.B., magneto, spring forks	25	10	
3 h.p. CLARENDON, loop frame, smart	10	10	
3½ h.p. CENTAUR, low built, powerful	12	12	
3½ h.p. STANDARD £10	2½ h.p. DE DION	£9	
2½ h.p. SPARK 10	2½ h.p. PROGRESS	9	
3 h.p. ARIEL 11	2½ h.p. MINERVA	8	
3 h.p. HUMBER 9	3 h.p. HOBART	6	

LIGHTWEIGHTS.—The following machines will climb all ordinary hills, extraordinary hills with slight assistance, and will attain 30 miles per hour on level:

1¾ h.p. MINERVA, good tyres. V belt	£4	15	
1¾ h.p. QUADRANT, very reliable, handy	5	15	
2 h.p. MINERVA, M.O.V., spray, smart	7	10	
2 h.p. LIBERTY, vertical engine, reliable	6	10	
2¼ h.p. CENTAUR, very smart appearance	7	10	
2¾ h.p. ORMONDE, Antoine engine, smart	7	10	
2¾ h.p. VINCO, vertical engine, smart	6	15	
2 h.p. CLYDE, vertical engine, magneto	8	10	

Push Cycles taken in part payment.

MILLS-FULFORD Sidecar, 26in. wheel	£3	18	
MONTGOMERY, flexible joints	3	18	
TRAILER, 25/-. Another, very good	1	12	
FORECARRIAGE, coach built, side stays	4	18	

Coronet Spring

Seat Pillar.

PRICE LOW. ADVANTAGES HIGH.

High machines made low. Vibration entirely eliminated. Smooth riding over rough roads.

Descriptive literature free.

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Made from selected parts of hides. Correct angle, non-stretching, long life, perfect drive. Sample belt on approval on receipt of remittance.

⅛in. 9d., ¼in. 10½d., ⅜in. 1/-, 1in. 1/1.

Special terms to the Trade.

High-class Motor Cycles wanted for cash.

H. BOOTH Coronet Works WADE ST., **HALIFAX**

TELEPHONE 198Y.

MOTOR BICYCLES FOR SALE.

3½-4 h.p. Norton Twin, Peugeot engine, Druids, Palmers, in new condition; £25.—L1,515, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

2¾ h.p. Minerva, vertical engine, M.O.V., in good running order and condition; £10 10s. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin Rex, £18; 3½ h.p. Perry, £14; 3½ h.p. Clarendon, magneto, £10; 3½ h.p. Minerva tricar, £20; 3 h.p. Ascot, £7.—Heightons, Peterborough.

3 h.p. Ariel, in particularly good condition; £10 10s.; splendid cash bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

ARIEL Lightweight, 2½ h.p., Simms-Bosch magneto, condition as new, very little used; £25, a bargain.—70, Church Street, Preston, Lancs.

IF You Want Bargains in second-hand motor cycles, you can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. R. and P., vertical, Longuemare, trembler, 26in. by 2¼in. Clippers, fast and low; £10 10s., or good push cycle part.—Pollard, Wragby, Lincs.

3½ h.p. N.S.U., in very good condition for second-hand machine; price £15. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

2½ h.p. Jap, spring forks, handle-bar throttle, Brooks B105, Dunlops; price 12 guineas; seen after seven.—Motor, 168, Maple Road, Penge.

4 h.p. Roc, free engine clutch, Stevens engine; 20 guineas; magneto ignition.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

BRAND New 5½ h.p. Rex de Luxe, 1908 finish and guarantee, magneto, Roc clutch, just delivered; bargain, £34.—Wallis, grocer, Hills Road, Cambridge.

6 h.p. Twin-cylinder Antoine Motor Cycle, very powerful; offers.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

1907 3½ h.p. Minerva, run 200 miles, equal new; trial, or expert examination; spares and accessories; £22; going abroad.—Clark, 33, Coleshill Street, Atherstone.

2 h.p. Minerva, M.O.V., round tank, B.S.A. fittings; £6 10s.; good light runabout. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

1907 F.N. 4½ h.p. Four-cylinder Motor Bicycle, as new, with all spare parts, with new gas lamp; £32; trial by appointment. — 125, Balham Hill, London, S.W.

2 h.p. De Dion-New Hudson, vertical engine, excellent condition; £9 9s.; lightweight motor cycle.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

FOR Sale, 1907 3½ h.p. Minerva, spring forks, magneto ignition, never been on road, guaranteed perfect; £35. — G. Sewell, 6, Loris Street, Dudley Hill, Bradford.

4 h.p. M.M.C., spring front forks, vertical engine, very powerful and fast; £15, good bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

F.N. 1907 Model Lightweight, magneto, new June, grand climber, lamp, horn, spares, tools, good condition; any trial; sacrifice £22 10s.—R. J. Whalley, Contractor, Darwen.

5 h.p. G.B., twin-cylinder machine, Minerva engine, magneto ignition, low frame, in excellent condition; £25; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. Humber, free engine clutch, long handle-bars, new Continental, 2¼in. Model de Course tyres, good hill-climber, fast, perfect condition; £15, bargain.—Dr. McHaffie, Tyne Dock.

MINERVA and Rex. — We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

MOTOR BICYCLES FOR SALE.

3½ h.p. Bat, new accumulators, spares; £14.—41, Linden Grove, Nunhead.

3 h.p. Mitchell, perfect condition, wants accumulator; £6 10s.—33, Herschell Street, Leicester.

2 h.p. New Hudson, De Dion engine, new tyres, just been overhauled; £8.—207, Peckham Rye.

EDINBURGH. — 2¾ h.p. Kerry, brand new, perfect, and handsome machine; £20. — Morgan, 77, Spottiswoode Street.

3½ h.p. White and Poppe, late Chater-Lea frame, low position, all accessories; bargain, £16.—5, Heath Street, Hampstead.

TRIUMPH, 3 h.p., magneto, condition like new, all accessories; £23.—5, Heath Street, Hampstead.

TRIUMPHS, 1908; order at once for immediate delivery. We allow highest prices for second-hands. Triumphs particularly.—5, Heath Street, Hampstead.

2¾ h.p. Minerva, new August, 1907, grand condition, with spares; £15. — 5, Heath Street, Hampstead.

TRIUMPH, 3½ h.p., 1907, as new; £36, or take part payment lightweight F.N., or 2¾ h.p.—5, Heath Street, Hampstead.

SOLE Agents for Griffon motor cycles, Zedel engine; write for 1908 catalogue.—5, Heath Street, Hampstead.

£13 13s.—New 2½ h.p. Kerry, ridden only for tuning up; great sacrifice; guaranteed perfect.—6, Carlton Grove, Peckham, London.

3 h.p. Chase, De Cart engine; lowest price £15 15s.; Chater-Lea fittings throughout. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. Triumph, September, 1907, as new, run 700 miles; approval, or appointment; £33.—The Shrubbery, Tooting Graveney.

2¾ h.p. Magneto F.N., guaranteed perfect, new Dermatine, good tyres, good hill-climber; £17.—Williams, Rose Hill, Worcester.

£8 10s.—Genuine Clement-Garrard lightweight, two-speed gear, splendid condition, perfect. — 42, Forest Lane, Maryland Point, E.

F.N., lightweight, 1¾ h.p., lamp, horn, stand, carrier, new September, 1907, will guarantee; £25.—Mottram, Rose Hill, London Road, Worcester.

3½ h.p. 1907 Magneto Triumph, show finish, condition as new, lamp, spares, etc.; bargain, £32 10s.—J. S. Willway and Sons, Ltd., Bristol.

£8 10s.—2¼ h.p. Kerry motor cycle, in very good condition, new piston, cylinder, and rings just fitted.—Motorist, Benfleet Hall, Sutton, Surrey.

3 h.p. Singer Motor Cycle, magneto ignition, in first-class condition throughout; offers.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

CLEMENT-GARRARD, 2¼ h.p., two-speed gear, many new parts, including back tyre, excellent condition; £11.—Walters, Service Co., 292, High Holborn, London.

6 h.p. Twin-cylinder Jap-Ariel, low frame, 26 by 2½in. wheels, has seen but little use; £28; exchange arranged. —Wauchope's, 9, Shoe Lane, Fleet Street, London.

4 h.p. Twin Werner, splendid machine, easily do 40 m.p.h., extremely reliable, and in perfect touring condition; £20.—Redman, jun., Arnside, Westmorland.

3½ h.p. Triumph Motor Cycle, in condition as new, 1907 model, magneto; £35; exchange arranged. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

EDINBURGH. — Alexander's Motor Exchange, 110, Lothian Road, the largest variety and stock of motor cycles in Scotland; agents for Quadrant, Griffon, Rex, N.S.U., Adler, Roc, Minerva, Vindec, and Bercley motors; repairs, spare parts; exchanges, easy payments.

1908 TRIUMPH.

Brand new. £15 cash and 1907 Triumph secures this.

What do you want to buy, sell, or exchange? WRITE ME. I work on 5 % profits.

REX MACHINES.

If you want one of these, write me. I have the pick of Halifax. All tuned up, and fit as fiddles.

TWINS ARE MY SPECIALITY.

3½ h.p. **QUADRANT**, '07, done 200 ..	£25	0	0
3½ h.p. **N.S.U.**, magneto, 24in. wheels	25	0	0
3½ h.p. 1906 **REX**, spring forks	15	0	0
5½ h.p. **TWIN N.S.U.**, magneto	34	0	0
3½ h.p. **ROC** pattern, very low	14	0	0
3½ h.p. **BROWN**, 1907 model.....	21	0	0
3½ h.p. 1997 **REX**, spring forks.....	18	0	0
5½ h.p. 1907 **TWIN REX**, spring forks..	22	0	0
4½ h.p. **TWIN MINERVA**, 1907, brand new.....	31	0	0
3 h.p. **N.S.U.**, has won Leeds Hill Climb	16	0	0
4 h.p. **KELECOM**, 26×2¼in. tyres	16	0	0
3 h.p. **CLARENDON**, vertical, Longuemare	10	0	0
3 h.p. **KING**, vertical, spray	10	0	0
3 h.p. **BRADBURY**, new Dunlops	11	0	0
3½ h.p. 1905 **REX**, 21in. frame.....	12	0	0
3½ h.p. 1904 **REX**, 22in. frame	9	0	0
3 h.p. **QUADRANT**, spring forks	12	0	0
2¾ h.p. **WERNER**, vertical and low	10	0	0
3½ h.p. **DUX**, M.O.V., spray	12	0	0
3 h.p. **NOBLE**, vertical, M.O.V.	10	0	0
3 h.p. **REX**, good goer.....	9	0	0
2 h.p. **R. & PRICE**, 26in. wheels.....	10	0	0
£10 1¾ h.p. **CLEMENT-GARRARD**, two speeds, weighs under 60 lbs.	10	0	0
£5 2¾ h.p. **SHAW**, vertical engine	5	0	0
£7 2¾ h.p. **HUMBER**, fine goer.....	7	0	0
£6 2 h.p. **QUADRANT**, grand machine	6	0	0
£7 3½ h.p. **AUTOMOTOR**, spray, vertical engine.....	7	0	0
£4 10 2 h.p. **KING**, spray carburetter	4	10	0
1¾ h.p. **MINERVA**, good....	5	0	0

Push cycle, etc., accepted in part payment.

TRICARS, etc.

5½ h.p. **REXETTE**, two speeds, open frame	29	0	0
3½ h.p. **TRICAR**, Phœnix, two speeds..	19	0	0
3½ h.p. **MINERVA TRICAR**	18	0	0
5 h.p. Twin-cylinder Runabout, wheel steering	12	0	0
Montgomery Sidecar, 24in. wheel.....	5	10	0
Montgomery Sidecar, 26in. wheel.....	5	10	0
Montgomery Sidecar, 28in. wheel.....	5	10	0

MISCELLANEOUS.

2 h.p. Singer Engine and Magneto	3	0	0
Four-speed Gear for belt drive	1	10	0
B100 Saddle	0	12	6
Dunhill's Speedometers	0	6	6
3 h.p. Quadrant Engine	3	0	0
3½ h.p. 1907 Quadrant Engine, new	4	10	0
4½ h.p. New Orleans Engine	5	0	0
3 h.p. Automotor Engine	2	19	0
Tricar Frame, with wheels and tyres ..	6	10	0
Tricar Frame, no wheels or tyres, open type for wheel steering.....	4	10	0
Drummond Lathe, treadle, new nine weeks ago	12	10	0

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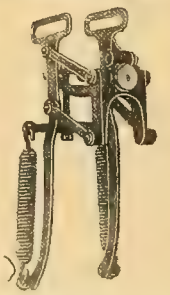

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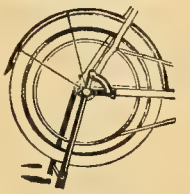

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For either 24in., 26in., or 28in. wheels.

Note the price—

4/9 per pair.

I have bought Seven Tons of Quadrant Engines and Parts. Send your requirements.

HIGH-CLASS MOTOR CYCLES WANTED FOR CASH. MONEY WAITING.

E. FARRAR, Albion Works, Square Road, **HALIFAX**

Genuine Birmingham

"QUADRANTS."

A large stock of parts, still to be cleared. Write for latest List.

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MOTOR BICYCLES FOR SALE.

FIRST Offer Near £14.—3½ h.p. spring frame Bat, footboards, Palmers and self-sealers, Grip pulley, two accumulators; bargain. — Parr, Pokesdown, Bournemouth.

3 h.p. Fafnir, in Bat pattern frame, Chater-Lea fittings, engine recently overhauled; £12 10s., great bargain. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

TWIN 5½ h.p. Kerry, Bennett free engine, Brooks non-skid, two accumulators, spare tyre and pulley, sound and reliable; £21; approval.—Rudland, Victoria Road, Middlesbrough.

3½ h.p. Humber, very little used, quite equal to new, free engine, chain drive, Dunlops, all accessories and spares; cash price £18.—Banks, Council Offices, Hendon, London, N.W.

6 h.p. Special Riley Twin, 2½ Palmer front, 3in. back, horn, electric lamp, stand, spares, very powerful machine, and as new; photo sent; £32, cost £60.—Potter, Blenheim Square, Leeds.

3½ h.p. Phœnix Motor Cycle, with Phœnix two-speed gear, low frame, Minerva engine, in splendid order, and very powerful; £23.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Vindec Special, Truffault forks, Peter-Union tyres, two belts and pulleys, and several spares, perfect condition, only ridden 1,500 miles; £33.—J. Cobley, Walnut Tree House, Cheshunt.

3½ h.p. Brown Motor Cycle, in excellent condition and running order, low machine, 26in. wheels, magneto ignition; very lowest price £23.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin Rex, cost 50 guineas, with Montgomery sidecar, cost ten guineas, very powerful, lamp, horn, spares, complete, ready for road; £23, or separate.—W. H. Wood, 33, Cornhill, London.

6 h.p. Twin-cylinder Lurquin and Coudert, in Bat pattern frame, Brooks B100 saddle, low frame, long handle-bars; £17 10s., a sound motor, and cheap.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin Rex, winner Buxton Hill-climb, cantilever seat, brand new Dermatine belt, double Fuller syntonic coil, thumbslide control, electric horn, cut-outs; £22; approval.—C. Lloyd, Shirburn, Ramsgate.

1907 3½ h.p. Minerva, perfect, two Riches tubes, footrests, all spares (new), tyres unscratched, ridden very little, and guaranteed as new; nearest cash offer £25; owner bought tricar.—Grace, 21, Church Street, Slough.

ROC, 1907, new May, hand starting, magneto, unpunctured, perfect condition, lamp, separate generator, double twist horn, foot pump, toolbag and carrier; £32, no offers.—Apply, 8,955, *The Motor Cycle* Offices, Coventry.

BARGAIN! — Practically new 4½ h.p. 1907 twin Minerva, very low, No. 6 Chater-Lea frame, 24 by 2½ Peter-Unions, Longuemare, Watawata, very reliable, starts first push, free engine; cash £23. —Wallis, grocer, Hills Road, Cambridge.

ROC, 4 h.p., Military Model, with free engine, 1907 pattern, magneto ignition, practically new; owner going in for car; spares, tools, pump, Lucas lamp, belt, horn, etc.; £30, no offers.—McLean, Duke Street, St. Helens.

QUADRANT, 3½ h.p., perfect condition, 1906 machine, but only driven about 1,000 miles, tyres unscratched, entire machine like new, all accessories, stand, etc.; price £25, no offers.—Apply, G.G., 34, Cambridge Place, Paddington, London, W.

SPECIAL Clearance Lines.—1½ h.p. Excelsior-Minerva, £4 17s. 6d.; 2 h.p. Minerva, £6 10s.; 2 h.p. Minerva, £6 10s.; 2½ h.p. Excelsior, £8 10s.; 1¾ h.p. Excelsior-Minerva, £5 15s.; 3½ h.p. Aster engine motor cycle, £8 10s.; 3 h.p. Calvert, £5; 2 h.p. Daw, £4; 3½ h.p. London, £10 10s.; 2½ h.p. Minerva, £8 10s.; 3 h.p. Ariel, £10 10s.; 2¾ h.p. 1905 Roc, £10 10s.; 2¾ h.p. Minerva, £10 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MOTOR BICYCLES FOR SALE.

ONE 4 h.p. Motor Cycle, tools, lamp, etc., complete; nearest offer £17.

ONE 1½ h.p. Quadrant, in good condition, immediate sale, £6 10s.; also 1½ h.p. Minerva engine, tank, coil, etc., £1 10s.

ONE 1904 Rex; £11 10s.

ONE 4½ h.p. Twin Minerva, £22; also one 40-gallon barrel best gas engine oil, £2 10s.

ALSO 20 Gallons Motor Oil, w.c., £2; 4 Oldsmobile car tyres, nearly new, the lot £3; also frame and wheels of steam car, £1.—Degg's Garage, Rugeley.

£8 10s., or offer.—2½ h.p. Fafnir, not a crock.—Plint, Bell Street, Henley.

3½ h.p. Spring Frame Bat; £15, or exchange.—Motor 73, High Road, Lee, S.E.

3½ h.p. Excelsior, M.M.C. engine, fine machine; £10 10s. — 190, Mellison Road, Tooting.

3 h.p. Bradbury, long bars; £8 10s.—Particulars, Richardson, 57, Castle Street, Cambridge.

3½ h.p. Minerva, M.O.V., new Palmers; £12 10s., or exchange.—7, Marischall Road, Lee, S.E.

£9.—2½ h.p., Ariel engine, exceedingly low built, 26in. wheels; bargain.—T. A. Morris, Bourne.

3½ h.p. Rex, spring forks, excellent condition; £12, or offer.—62, Colvestone Crescent, Dalston.

3½ h.p. Bat, Palmer tyres, grand mount; trial; £16 10s.—128, High Road, Tottenham.

TRIUMPH, 1906, magneto, spare cover, tubes, etc., condition perfect.—Murray, Castlehead, Paisley.

2¾ h.p. Minerva, low frame, footrests and pedals, faultless; £9 15s.—A. Soper, 307, Clapham Road, S.W.

3 h.p. Triumph, splendid condition, only wants seeing; £20, or offer.—Carlton, Warwick Road, Snaresbrook.

3½ h.p. Whitley, very fast and powerful, trembler coil, faultless; £9 15s.—J. May, 111, Larkhall Lane, S.W.

3 h.p. Trent, Chater-Lea, very fast machine, in excellent condition; £12 10s.; trial.—128, High Road, Tottenham.

3¼ h.p. Twin Werner, long bars, low position, racy machine, as new; trial; £17 10s.—128, High Road, Tottenham.

2½ h.p. Minerva, 21in. frame, 26in. wheels, perfect order; £10, or £8 and 24in. push bike.—14, Belgrave Road, Ilford.

4½ h.p. Twin Minerva, spring forks, Advance pulley, Whittle belt, just overhauled; £26 10s.—128, High Road, Tottenham. Trial.

LIVERPUDLIANS! — Call at 74, Bold Street, and see latest models of Triumph and Roc motors.—Hitchings are the sole agents.

WHAT Offers for 2¾ h.p. Kerry, in good condition, with trailer, also new Palmer cord cover, 26in. by 2, one trailer, Perry's fittings.—Wilkins and Son, Calne, Wilts.

BAT, 2¾ h.p. De Dion engine and carburetter, 26in. wheels, long handlebars, footrests, Clincher tyres; price £12 10s.—Fowler, Kiora, Eaton Road, Coventry.

MINERVA, 1¾ h.p., in good order, spray carburetter, adjustable spray and float, E.I.C. coil, Prested, Dunlops, new tread front; £9, offer.—Mackay, Butterknowle, Durham.

3 h.p. Singer, free engine, two-speed gear, chain driven, spring forks, magneto ignition, perfect condition; first £10 secures; no approval.—120, Chapel Road, Worthing.

3 h.p. Quadrant, new tyres, Clincher A1 and Peter-Union non-skid, two accumulators, stand and spares; trial allowed, splendid flier.—Chowne, Southcombe, Crewkerne.

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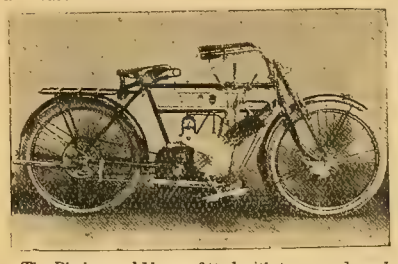
Your enquiries and orders will receive prompt and careful attention.



The Phelon and Moore, fitted with two speeds and magneto ignition, has gained full honours in the 1,000 A.C.C. Trials three consecutive years. Recommended for solo or sidecar work. Exchange and extended payments arranged. British work for British requirements.

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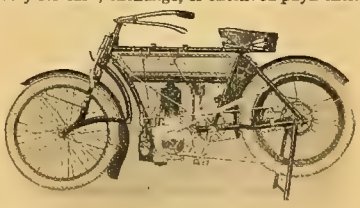

The Vindec Special Model H, 3½ h.p. Peugeot engine, fitted with magneto ignition and Traffault forks. Exchange and extended payments arranged.

Early deliveries can now be given with the latest model ROC, fitted with 2-speed gear and magneto ignition. Price from 45 guineas.

We can quote you for any leading make, including F.N., Minerva, Moto Reve, Motosacoche, N.S.U., G.B., Rex, Griffon, Ariel, etc.

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London agents for the Montgomery, with flexible joints, price from £7 7s.; and Mills and Fulford Rigid and Castor Wheel, from £8 8s.

Trial runs arranged with either. Extended payments if desired.

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The Riley for speed and reliability remains unbeaten. 5 h.p., 85 guineas; made up to 9 h.p. Exchange or extended payments accepted.

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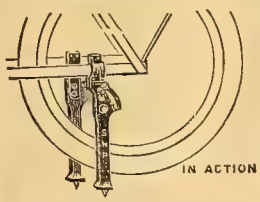

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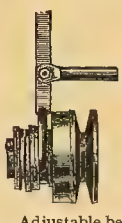

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Advance, adjustable 20/-
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Cars, Tricars, and Motor Cycles for sale, shop-soiled and second-hand. Write for list. We can arrange extended payments for most of these.

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MOTOR BICYCLES FOR SALE.

FOR Sale, 3½ h.p. Minerva, Advance pulley, accessories; bargain, £18.—32, Heath Road, Bebington, Cheshire.

FOR Sale, 2 h.p. Quadrant, good condition, perfect running order, reliable, Longuemare, Dermatine, Clinchers; £10.—Tyderwyn, Surrey Road, Bournemouth.

1907 N.S.U., magneto, lightweight, exactly as delivered, with all tools, not ridden 30 miles, weight 75 lbs.; cost £34 10s., lowest £22 10s.—186, South Lambeth Road, S.W.

1905 3 h.p. Quadrant, grand condition, new Clincher tyres, tubes complete, stand, lamp, spares, climb anything; bargain, £13, accept low built No. 6 frame part.—Hall, 537, Ecclesall Road, Sheffield.

2 h.p. Jehu, Fafnir engine, vertical, low, 26in. wheels, Palmer cord, Clincher, Dermatine, new accumulator, just been enamelled, very fast, will ride 50 miles to buyer; £8.—Motor, Belmont, Millstrood, Whitstable.

ZENITH Bicar, 4 h.p., with free engine clutch and starting handle, Whittles belt, Brooks saddle, luggage carrier, in excellent condition; price £21 cash (lowest), thorough bargain.—Owner, c/o Zenith, 101, Stroud Green Road, London.

1908 3½ h.p. Triumph, new, owner having ordered same last year; will sacrifice £3, sell £45; delivery this week, unridden, selling through unforeseen circumstances; cash only; South London.—8,953, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

STAMFORD HILL.—We are agents for all leading makes. Let us quote you; sound second-hand machines allowed for liberally; second-hand machines handed to buyers ready for road; trials at any time. Summer is coming, buck up.—128, High Road, Tottenham.

3½ h.p. 1907 N.S.U. Motor Cycle, powerful and fast, has had but very little wear, and the machine is in condition like new, complete with separate generator, lamp, horn, and tools; for quick sale £19 10s.—Apply between 12-30 and 2, 15, Furnival Street, Holborn, London.

4 h.p. Roc, magneto ignition, latest 1908 model, not used more than two or three times, fitted with two-speed gear and free engine clutch, starting handle, etc., in condition just as come from the works; price £35.—Wauchope's, 9, Shoe Lane, Fleet Street, London. Exchange arranged.

6 h.p. Twin, Sarolea engine, Chater-Lea fittings, 26 by 2½ Reflex-Clipper tyres, spring forks, long handle-bars, Brooks B10 saddle, footboards, two belts, two accumulators, the whole in new condition; extraordinary bargain; first offer over £21 has it.—Sibley, 32, Fulham Palace Road, Hammersmith.

5 h.p. 1907 Norton-Peugeot Twin Tourer, winner T.T., unscratched, guaranteed perfect throughout, magneto, special economical carburetter, Albion pulley, spring forks, nearly new special 45s. Clincher and spare, searchlight, tools, petrol gauge, complete; £38.—Photo, particulars, 0-2763, Norton Mfg. Co., Deritend, Birmingham.

3 h.p. Quadrant, engine and commutator just overhauled and renewed throughout, Longuemare carburetter, nearly new Clincher tyres, Michelin butt-ended, 25 ampere Castle and 10 ampere Lithanode accumulators, both as new, stand, carrier, additional long handle-bars and swan-neck seat-pillar, spare tyres and engine pulley; £14.—A. R. Blockley, Wellington, Salop.

6 h.p. Twin-cylinder Bat, spring frame and forks, Jap engine, Jap automatic lubricator, Jebron contacts, special metal-to-metal brakes, Peter-Union studded tyres to both wheels, back tube filled Miraculum, Autoclipse lamp, separate generator, new 1in. Dermatine belt, new 1in. Giant Watawata, new Fuller coil, and two accumulators, with full kit of tools and spares, done under 2,000 miles; any examination; owner bought car; price 35 guineas.—Humphreys, 6, Comberton Terrace, Kidderminster.

MOTOR BICYCLES FOR SALE.

1906 6 h.p. Twin Antoine, in excellent condition, Dunlop tyres, Stanley-Dermatine belt, accumulators, spares, etc.; what offers? — Hornsby, Stanley Villa, Apsley, Hemel Hempstead.

WHAT, What, What.—1¾ h.p. Minerva, £5; 2 h.p. Minerva, £7; 2 h.p. Quadrant, £8; 2 h.p. Standard, £8; 2 h.p. Werner, £5; 2½ h.p. Kerry, £9; 2¾ h.p. Antoine, £9 10s.; 2 h.p. magneto Simms, £9; 3 h.p. Hobart, £10; 3 h.p. Rover, £13 10s.; 3½ h.p. Rex, £9 10s.; 2½ h.p. Aurora, £12; spring fork Rex, £14 10s.; 5 h.p. Rex, £18; 3½ h.p. Kerry, £18 10s.; 2¾ h.p. F.N., £14 10s.; 2¾ h.p. De Dion, £14 10s.; 3½ h.p. N.S.U., magneto, spring forks, £24; 2¾ h.p. Triumph, £15; Rex de Luxe, best offer; 4 h.p. Atelier, £16; twin Werner, £16; 4 h.p. Waddington, £16; twin N.S.U., £25; 3 h.p. M.M.C., £13; 3 h.p Humber, £11 10s.; 3½ h.p. Minerva, £18 10s.; twin Berkeley, £21; 3 h.p. Automotor, £10 10s.; 3½ h.p. magneto Rex; 2 h.p. Humber; twin Alcyon, £22; 4 h.p. Antoine; 1¾ h.p. Minerva, £4 10s.; 1¾ h.p. Quadrant, £5; 3 h.p. Lloyds, £14 10s.; 2½ h.p. Excelsior, £6; 4 h.p. Buchet, £14 10s.; 4 h.p. Coronet, £16; cash, exchange, or extended payments.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

TRICARS FOR SALE.

HALIFAX.—4½ h.p. water-cooled Wolf, two speeds, handle starting; £37 10s.—Below.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built, four-speed gear; £37 10s.

HALIFAX.—5½ h.p. Rexette, two speeds, spring frame, car tyres, in perfect order; £37 10s., bargain.

HALIFAX.—6 h.p. twin-cylinder Advance tricar, wheel steering, only used for trials; bucket seat; £35.

HALIFAX.—5½ h.p. Rex Triette, spring frame, free engine clutch, very reliable; £29 10s.—Below.

HALIFAX. — 1906 6½ h.p. twin-cylinder Clyde, water-cooled, sprung open frame, Stevens engine, two speeds, wheel steering, almost equal to new; £42.

HALIFAX.—6 h.p. twin Antoine tricar, a real gem, open frame, three speeds, wheel steering, chain drive, foot clutch; £39 10s.

HALIFAX.—8 h.p. twin-cylinder Rexette, carry three (1906), fine condition, excellent climber, non-skid to rear, a top gear car; £42 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

5 h.p. Garrard, three speeds; £25.—6, Norman Avenue, Stoke, Devonport.

3½ h.p. Humber Tricar; £17 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

FARRAR.—5½ h.p. Rexette, chain drive, open frame, wheel steering, two speeds; £29.—Below.

FARRAR.—3½ h.p. Minerva tricar, vertical engine, M.O.V., fan-cooled, Longuemare carburetter; £18 10s.—Farrar, Square Road, Halifax.

3 h.p. M.M.C. Tricar; £10 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5½ h.p. Quadrant Tricar, two speeds, handle starting, as new; £29 10s.—1, Montagu Avenue, Brockley, S.E.

PHŒNIX-MINERVA 3½-4½ h.p. Tricar, coach-built, two speeds; £19 19s., lowest.—41, Skelbrook Street, Earlsfield.

5½ h.p. coach-built water-cooled two-speed tricar; cost £100, sacrifice £29, as new.—24, Dalmeny Road, Tufnell Park, N.

6 h.p. Riley Tricar, in practically new condition, and very carefully used, plenty spares, etc.; £60.—7, Duke's Avenue, Chiswick, W.

PHŒNIX Trimo, with basket, side stays, 2½ h.p Minerva, very powerful, tyres perfect; £11 11s.; exchange cycle.—134, Highgate Road, Kentish Town.

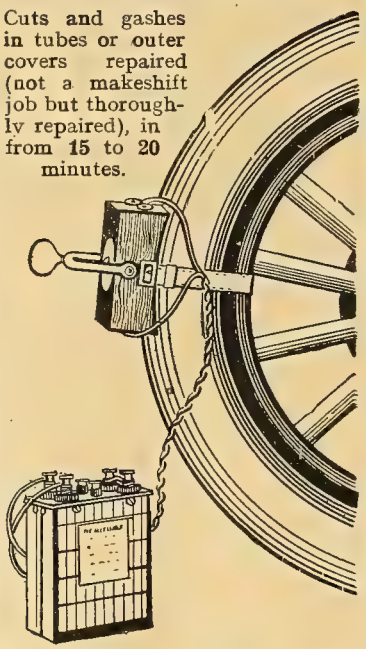
BRADBURY Tricar, 5 h.p., water-cooled, two speed, handle starting, wheel steering, as new, for 3½ h.p. Triumph, little cash; sell £40.—Ind, Upholland.

Honestly, Now

are you a busy man? is your time too valuable to be wasted? if so, you will certainly give more than a passing thought to

HAY'S ELECTRIC VULCANIZER

Cuts and gashes in tubes or outer covers repaired (not a makeshift job but thoroughly repaired), in from 15 to 20 minutes.



No technical knowledge called for. If time is worth anything to you, we shall hear from you about this.

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Believe us, you need not.

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DOES PREVENT PUNCTURES, without slowing the tyres in the slightest, and without any perceptible addition to weight. A thoroughly tested and fully proven device.

If you cannot obtain locally, write

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TRICARS FOR SALE.

5-6 h.p. Twin Rex Triette, Chapman two-speed gear; £22, or would exchange.—142, Lewisham High Road, New Cross, S.E.

£20.—4½ h.p. M.M.C., water-cooled, Bozier two-speed, good condition.—Klipsch, Garth, Coronation Drive, Crosby, Liverpool.

PRICES will rise. — 3½ h.p. w.c. Fafnir, four speeds, light tricar, tons of power for two; £29; trial.—128, High Road, Tottenham.

GET Your Machine before the boom.—4 h.p. Phœnix Trimo, Fit-all two speeds; great bargain, £27 10s.; trial.—128, High Road, Tottenham.

5 h.p. Three-wheeled Runabout, twin Bercley engine, Chater-Lea frame, bucket seat.—Seen at Horsmans, Engineers, Acre Road, Kingston-on-Thames £30.

3½ h.p. Ascot Tricar, in first-class condition, can be converted to motor cycle, spare front wheel; £22; opportunity.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin Tricar, coach-built, two speeds, wheel; exchange for small car, water-cooled quad, powerful single, good lathe, or offers.—No. 8,954, *The Motor Cycle* Offices, Coventry.

SUMMER is Coming. — 5 h.p. w.c. Excelsior tricar, three speeds, very light and fast, Oppermann gears, very economical to run; £29 10s.; trial.—128, High Road, Tottenham.

TRIUMPH Water-cooled Tricar, two speeds, chain drive, large pedal-operated clutch, tyres as new, splendid condition. — Cosens, 20, Crystal Palace Park Road, Sydenham.

3½ h.p. Humber Engine Tricar, coach-built, two acetylene lamps, new Palmer cord tyre to back wheel, two accumulators, horn, and accessories; £15.—Lacey, High Street, Staines.

AUTO Social Tricar, water-cooled, free engine, 4½ h.p., two speeds, wheel steering, perfect order; £25 cash; take good motor cycle part payment.—Newton, 27, Queen Street, Preston.

5½ h.p. Rexette, like new, just like a car, studded band on back; a genuine bargain, lamps, accessories; seen by appointment; must sell at once.—Smith, 1, Halford Road, Leyton.

5-6 h.p. Rexette, two speeds, wheel steering, coach-built, three new Palmer tyres fitted, perfect; bargain, £38, or would give cash for a four-seater car.—Seldon, 12, King Edward Road, Swansea.

PHŒNIX Trimo, 1906 coach-built model, 5 h.p. fan-cooled Peugeot engine, new two-speed gearbox, wheel steering, Peter-Unions, in perfect condition; offers.—Lewis, Pennington, Gillingate, Kendal.

4 h.p. Antoine-Chater-Lea Tricar, open frame, bucket seat, wheel steering, chain drive, free engine, splendid condition, enamelled chocolate; £25, exchange cycles and accessories.—143, Roman Road, Old Ford, E.

RALEIGHETTE, 3½ h.p., water-cooled, extra wide forecar, complete, new tyres, two speeds, in splendid running condition; accept £35 if sold at once.—Apply, C.G., c/o Mitchell's Garage, 110, Radford Road, Nottingham.

5 h.p. Twin-cylinder Light Tricar, Anglian two-speed gear and clutch, magneto, tyres almost new, 2¾ Palmer cord on back, extra mudguards, pump, tools, horn; £35; owner abroad.—Clark, George Street, Ryde, Isle of Wight.

4½ h.p. Stevens, open frame, wheel steering, two speeds, foot clutch, handle starting, low built, racy looking; must sell; best offer gets it; might accept powerful bike or push bike in part payment.—22, Halons Road, Eltham.

KERRY Tricar, 5 h.p., twin-cylinder, specially silenced, bucket seat, every refinement, perfect condition, and most reliable; any trial; photo sent; price only £35, with most complete equipment. —Apply, H. Bax, Esq., Eldon, Weybridge, Surrey.

REPAIRERS.

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PULLEYS specially made to any diameter, for any make of machine from 7s.; delivery the day following receipt of order.—Laystall Motor Engineering Works, 27 and 29, Laystall Street, Rosebery Avenue, London, E.C.

MAGNETOS, high or low tension, remagnetised and returned same day; parts supplied; sole makers of En Route automatic accumulator-charging dynamo; specialists in electric ignition. —Bottone and Son, Wallington, Surrey.

EXCHANGE.

EXCHANGE good Humber tandem and cash for motor cycle.—Percy Maltby, Ilkeston.

EXCHANGE.—Old English Duke violin for low power motor cycle.—Corti, 130, Brixton Road, S.W.

SPECIAL Twin Antoine, for lower power Triumph or Quadrant.—183, Foleshill Road, Coventry.

POST Office, Bovingdon, Herts.—3½ h.p. Rover tricar, good condition; what offers exchange.

POWERFUL Bike, for two-speed cycle, or anything useful; trial.—10, Hayton Street, Knutsford.

2 h.p. Peugeot, splendid condition, and cash for higher power.—Worland, 58, Rathbone Street, Canning Town.

6 h.p. Water-cooled Engine, frame, body, and several parts car, for motor bike.—Legg, 8, Ancona Road, Plumstead.

3¼ h.p. Excelsior Tricar and 1½ h.p. Clement-Garrard two-speed bicycle for small car.—Preece, grocer, Monmouth.

EXCHANGE or sell Autoclipse lamp, new, for anything useful, suitable for '08 Roc.—Quinlan, Dalton-in-Furness.

HALIFAX.—What do you want? We exchange motor cycles, tricars, or cars; list on application.—16, Westgate, Halifax.

EXCHANGE Three-speed Road Racer, 22in. frame, for motor cycle, or sell £7.—W. Hewett, jun., 39, Alfred Road, Acton.

3½ h.p. M.M.C. 1906 Bike, spares, for lower power, incomplete, timber, caravan, machinery, etc. — 5, Gibbins Road, Selly Oak.

4 h.p. Auto Tricar, W.C., two speeds, carries three; I want good motor cycle, cash, or small car for it.—Reiffer, 12, Hillmore Grove, Sydenham.

1907 3½ h.p. Twin Werner, as new, spring forks, handle-bar control, for higher power and sidecar; cash adjustment.—Motor, 11, Walworth Road, S.E.

2¾ h.p. F.N., for lower power and cash; nearly new sidecar, £5, or exchange; Thompson trembler coil, for good lamp or saddle.—32, Osborne Road, Leyton.

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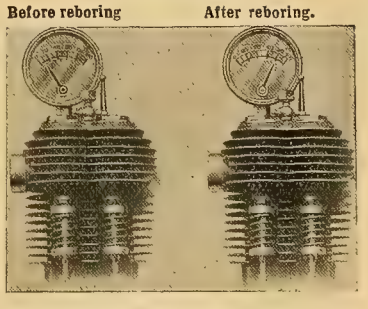

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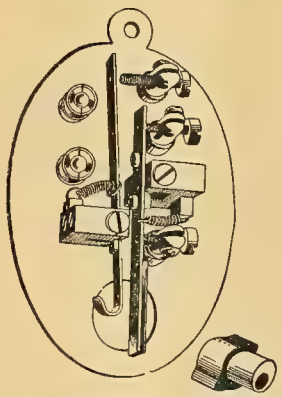

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WANTED, 1906 or 1907 Triumph.—Box 8,956, *The Motor Cycle* Offices, Coventry.

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WANTED, sidecarriage, Mills-Fulford, castor, 26 by 2½, excellent condition.—Wallbank, Myrtle Avenue, Bingley, Yorks.

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WANTED, 6 h.p. De Dion carburetter, cheap, and perfect condition.—Lord, agent, Rochdale.

WANTED, motor cycle, good make and condition.—Q., 15, Tantallon Road, Chestnut Grove, Balham.

WANTED, N.S.U., 1907, 3¾ h.p., or 3½ h.p. Triumph.—Usherwood, Grosvenor Street, Blackpool.

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WANTED, 6 or 7 h.p. A.C. twin engine, Riley, Jap, or Peugeot preferred; also inch Whittle belt, new.—Cash price to A. Ward, 36, King's Road, Windsor.

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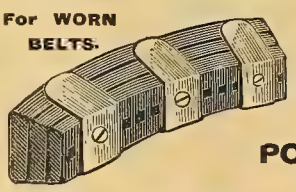

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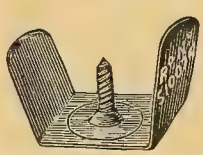

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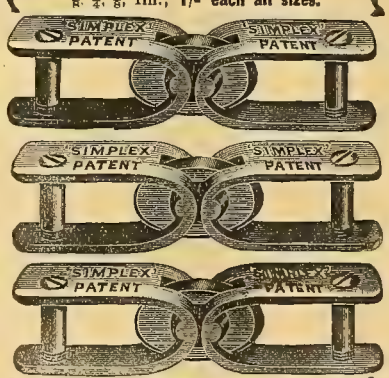

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BOOTH.—Engines: New 6 h.p. twin Antoine, complete, with contact breaker, valve lifter, and pulley; £7 19s. 6d.

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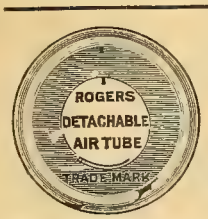

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JACKNOSKID Users say as a non-skid it is perfect, as jack it's invaluable.

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MAUDE gives shillings for sixpences, or, in other words, gives twice the value of anyone else; write him and see for yourself.—Maude's, Lilly Lane, Halifax.

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SMALL Stock of Accumulator Plates, also quantity of polished and perforated sheet celluloid, also insulating fibre in sheet form.—Apply for full particulars, Kirkwood, Electricity Works, Shrewsbury.

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19, Store Street, London.

Please write for our 1907 Catalogue.

Rich Detachable Air Tube.

26in. by 2¼in. ... 14/6 | 26in. by 2½in.... 15/6

Special price list of all sizes on application.

These tubes can be obtained in India from Messrs. F. B. STEWART & SONS, Poona.

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NO OTHER BELT HOLDS SUCH A RECORD.

HUNDREDS OF TESTIMONIALS.

NOTE THE PRICES.

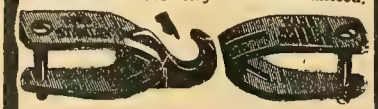
⅝in.	¾in.	⅞in.	1in.
1/2	1/4	1/8	1/11 per ft.

POST FREE.

A SEVERE TEST.—Mr. W. H. Wells writes: "I feel that it is only just to let you know how pleased I am with the Stanley Dermatine Belts which were used on all of the six 'Vindec Special' Motor Cycles in the recent six days' thousand miles reliability trials. As far as I am aware these belts gave no trouble whatever, and one belt only was used on each machine throughout the trials. On my own personal machine I only found it necessary to take out half an inch from the start to the finish, and at no time was I troubled with the belt slipping or tearing out at the ends. I shall certainly be only too pleased to recommend your Dermatine Belts to all users of the 'Vindec Special' Motor Cycles."

THE STANLEY DETACHABLE MOTOR BELT FASTENER,

With unbreakable Terry's hook. Guaranteed.



(Made under Simplex Patent.)

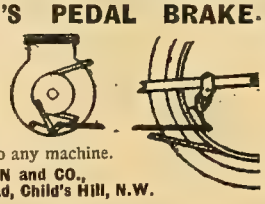
At last a perfect detachable motor belt fastener. In sizes ⅝in., ¾in., 1in., 1/- each Wholesale and Retail.

The New Stanley Dermatine Motor Belt Co., 32, London Road, Bromley, Kent.

CHAPMAN'S PEDAL BRAKE.

Black - 14/9
Plated - 17/-

Very powerful. Comfortable to use. Durable and reliable.



Adaptable to any machine.

JOHN CHAPMAN and CO., Finchley Road, Child's Hill, N.W.

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TWIN Trembler Coil, 15s.; twin Guenet trembler coil, 18s.; 20 amp. accumulator, 8s.; strong toolbag, 3s.; large brass acetylene lamp, 20s.; large and small acetylene lamps, 12s., 5s.—Apply, Kirkwood, Electricity Works, Shrewsbury.

BULL'S-EYE Lenses, concentrate light right ahead, 3in., 3½in., with plated rim, 1s. 9d.; better quality, cut and polished, without rim, 3in., 3½in., 3½in., 1s. 9d.; 3¾in., 2s.; 4in., 2s. 6d. each, carriage paid.—Payne, 149, Metchley Lane, Harborne.

2¼ h.p. Crossley Gas Engine, complete, gas bag, tank, and necessary piping, tube ignition, main shaft, with pulleys, two wall boxes, plummer blocks, and belts; £25, or nearest offer.—Box L1,525, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

PULLEYS for any Motor. — De Dion, M.M.C., 7s. 6d.; Antoines, Rex, Kelecom, 6s. 6d.; Peugeots, 6s.; Brown, Triumph, Fafnirs, 5s. 6d.; above 4½in. diameter, 1s. extra; plated, guaranteed, carriage paid.—J. Perkins, High Road, Leyton, London.

GRADUAL Payments or Cash.—Engines, new and second-hand, M.M.C., De Dion, etc., from £2 10s.; ten years' experience; air and water-cooled engines; repairs prompt; large stock parts; quick despatch; 3½ h.p. for 2¾ h.p.—The Record Motor Co., Coventry.

ADJUSTABLE Pulleys, any size, 10s.; adjustable pulleys, with free engine clutch, starting handle, complete, 57s. 6d.; cash with order; no alterations to fit.—For particulars write, E. Moorhouse and Co., Becks Road, Keighley. P.S.—After the 31st of January the price of adjustable pulleys will be 12s.

WHITWORTH Screw Plates, with taps, ⅛in. to ¼in., every 32nd, 12s.; hand drill with twist, drills to ⅜in., 10s.; stocks and dies for brass tube, ⅛in. to ⅜in., with taps, 15s.; hack saw and six dozen 9in. Star blades, 11s. 6d.; motor cycle roll, eight tools, 5s. 6d.; Billings motor wrench, 15in., 4s. 6d.; 10in. ditto, 2s. 6d.; all as new; exchange for frame, engine, wheels, or tyres, any parts or accessories.—8,962, *The Motor Cycle* Offices, Coventry.

STAMFORD HILL. — Projector double lens separate generator lamps, 12s. 6d., grand illuminators; lined calf gauntlets, 5s. 9d.; Midget plain coils, 3in. cube, 9s. 11d.; Longuemare carburetter, 14s. 6d.; Whitley ditto, 13s. 9d.; rubber and leather belting, best quality, from 8d. per foot; Price's patent stands, 5s. 9d.; Minerva plain coils, 11s. 11d.; accumulators, from 8s., guaranteed; Tooley clutch, 11s. 6d.; double twist horns, voice like cow, 4s. 9d., 6s. 6d.; wing mudguards, 6s. 6d. pair; 4in. steel mudguards, 1s. 9d. pair; plugs from 6d. each; sloped end bars, plated, 7s. 6d., 20in. long; overback seat-pillars, 4s.; hundreds of other parts.—128, High Road, Tottenham.

TRADE ADVERTISEMENTS.

N.S.U. Motors (West London District Agency).—We can accept your motor in part payment for these machines; deferred payments.—Eagles and Co., High Street, Acton. Telephone, 556, Chiswick.

TWENTIETH Century Motor Co., Ltd., Padua Road, Penge, S.E.—Polished brass float feed carburetters, new, 2 h.p., 8s., 3¼ h.p., 10s.; two-way sight feed oil pumps, new, 3s.; single control levers, new, 1s. 3d.; ditto, to fit 1⅛in. tube, 1s. 9d.; double ditto, 3s.; distribution wheels, new, 4s. per pair; pinion circulating pumps, new, 15s.; plunger pumps, new, 17s. 6d.; piston, ring, and pulley castings; polished brass double ratchet levers, to fit 1⅛in. steering column, new, 7s. 6d.; send penny stamp for long list of second-hand and new motor parts; approval on receipt of cash, or through *The Motor Cycle*.

HOTELS AND APARTMENTS.

WHEN Visiting London stay at Waverley Temperance Hotel, 17, Euston Square. Bed, breakfast, attendance, from 3s.

THE MOTOR CYCLE

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The Dust Nuisance.

FEW people imagine that the motor cycle engine is the hardest worked and most ill-treated type of internal combustion motor extant. However kind, considerate, and skilful its driver may be, it has to put up with conditions which would make the average car engine complain in no uncertain tones. The latter has a gear to relieve it whenever it is too hard worked, its cylinders are kept at an approximately even temperature by the grateful and comforting water circulation, and it does its work in a nice compact bonnet, with a dust shield underneath. Its air intake is situated on an average two feet from the ground, so that it escapes the major portion of those whirling eddies of dust and other foreign matter which find their way into the cylinder and other parts.

The motor bicycle engine, on the other hand, enjoys no such luxuries; it has often enough to hammer itself hoarse on a steep hill when its maker or owner has foolishly geared it too high for the weight it has to propel, its cylinder is almost red hot one moment and then comfortably cool the next, its lubrication is seldom so perfect, and, owing to its closer proximity to the ground, the air intake allows more dust and other particles to be drawn into the cylinder on every induction stroke. Despite these disadvantages under which the motor cycle engine labours, it is quite as hard-wearing a piece of mechanism as its bigger brother, particularly if the speed at which it revolves is taken into account. It will then be found that for a given number of revolutions it will last quite as long, or longer, before requiring any renewal or adjustment to its bearings. This is greatly to its credit when one thinks of the before-mentioned conditions.

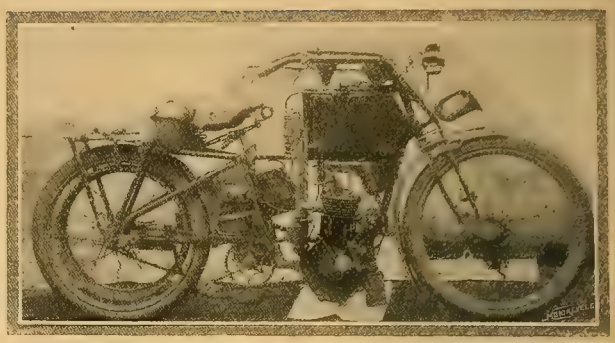
In a conversation we had with a lubricating oil expert the other day, he told us that it is no uncommon thing to find that deposit in motor cycle engines consists of eighty per cent. road dust. This more than confirms the analysis we had made last year, which was published on April 17th, page 305. This anaylsis gave the amount of road dust found in our sample as fifty-seven per cent., and riders were recommended to filter the ingoing air. This subject will bear further ventilation, and we suggest two or three methods by which the greater portion of the deposit could be prevented. The first is to protect all air intakes by fine gauze, and as gauze impedes the passage of a gas or liquid, a further alteration is found to be necessary, so that if the dust is to be excluded to as great an extent as possible, the area of the air passages must be made considerably larger, to make up for the obstruction created by the meshes of the fine gauze. Even then some dust will find its way through, but the larger and more harmful particles will be excluded. The effect of carefully covering the air ports of the carburetter in this manner will be to slightly increase the care required by the machine from its owner, as this gauze must be kept very clean; but it is easier and pleasanter to scrub down the outside of the carburetter with an old tooth-brush and petrol than to dismount cylinder and remove the deposit with a chisel.

The second suggestion is to connect the air intakes by suitable pipes to the framework of the machine, so that the ingoing air enters as far from the ground as possible. In the days of the surface carburetter one heard far less of deposit, probably because the air intake was further removed from the source of trouble. Readers will remember that both air intakes were about thirty inches from the ground, and one was usually

protected by gauze. To connect the carburetter to the seat tube should not be an insurmountable difficulty, and with the gauze protected air intake in the neighbourhood of the seat pillar we should approximately return to the old conditions.

A still further suggestion is to filter the gas on its way to the engine from the carburetter by interposing a detachable gauze fitted chamber which could be quickly removed, cleansed, and replaced.

It may seem a little strange to emphasise the importance of excluding dust now that the roads are covered with mud, but this is the time of year in which the good motor cyclist is preparing for better roads and more favourable riding conditions. It is when the evenings are dark and the weather bad that motor cyclists have sufficient time to devote to experiments.



A reader sends us the above photograph to show how he has altered and improved (?) his old pattern high-framed machine.

Hill-climbing Formulæ.

A SUGGESTION.

THAT a more satisfactory method of comparing the performances of motor cycles in hill-climbing competitions is required everyone who is interested in club doings will readily admit, and if we are permitted to hold any of our favourite events this year I hope this article will cause some discussion on what is a very important subject. Now, what are the requirements to be met? This query may best be answered indirectly. The machine securing the highest figure of merit should make the best all-round performance, and the formula should be such that all the bicycles, whether low or high powered, single or twin-cylindered, single or two-speeded, have an equal chance, and can compete together in one class. If we can satisfy the above conditions, then the figures of merit will be a measure of the *touring* efficiency of the various machines. By touring efficiency is meant suitability for touring purposes.

Small Machines in Competition.

In the early days when motor cycles never exceeded 2¾ h.p. Professor Callendar's formula worked very well; but times have changed, and we now have machines ranging from the 1¼ h.p. lightweight to the 9 h.p. twin with two-speed gear. The shortcomings of the above-mentioned formula became apparent as soon as high powered machines ran in competition with bicycles of comparatively low power. This difficulty was surmounted by subdividing the machines into classes according to cylinder capacity, and to-day it is not uncommon to read on the programme three classes for various powered single geared machines, and a fourth class for two-speeders, the winner in each class being determined on the formula $\frac{W}{C \times T}$,

where W = combined weight of machine and rider.
C = cylinder capacity in cubic centimetres or cubic inches.
T = time in seconds occupied in climbing the hill.

Let us examine this expression with the object of finding out its defects and, if possible, remedying them. The time T is inversely proportional to the speed of the vehicle, as the length of hill is a constant. We can therefore substitute V (the velocity of the machine) for T, and as the capacity of the cylinder, or cylinders, is a direct measure of the rated horse power, we can substitute H.P. for C. The expression now becomes $\frac{W \times V}{H.P.}$. The product W × V would be a direct measure of the power delivered at the road wheels of the machine if wind resistance were neglected or were proportional to the first power of the speed. We shall consider this later. Further, the power at the road wheels is proportional to the engine b.h.p.; we may therefore substitute B.H.P. for W × V. The final form of the expression is therefore $\frac{B.H.P.}{\text{rated H.P.}}$.

It will now be clear to everyone why the small 2 h.p. low geared machine has matters all its own way in the under 76 × 76 mm. class. The same applies to any machine with small cylinders in the multi-cylinder classes.

A Misleading Result.

The rated h.p. of an engine is developed on the brake at speeds ranging from 1,800 to 2,000 r.p.m., according to size, and the nearer the average engine speed on the hill approaches this value the greater will be the figure of merit. Therefore, in order to win, the rider must lower his gear considerably below the normal touring value, and endeavour to keep his engine speed up to that at which the engine develops its rated h.p. If, on the other hand, he retains his favourite touring gear, he risks being handsomely beaten on the formula by a much lower powered and lower geared machine, which, nevertheless, may be quite inferior as a touring mount.

Reference was made above to the effect of wind resistance on the result, which has a tendency to put speed at a disadvantage and encourage weight. In the modified form the performance is determined by the product W × V; in other words, the greater W and V are, the higher the figure of merit. But whereas the h.p. required to overcome traction and gravity is directly proportional to W, the h.p. varies as some power of the speed, greater than one and less than

Hill-climbing Formulæ.—

two. This is due to the fact that the resistance offered by the wind varies as the square of the speed. The net result is that for a given machine the F.M. would be higher if the weight were increased ten per cent. and the speed allowed to drop than if the speed were increased ten per cent. by a suitable reduction in the weight. In the writer's opinion it is inadvisable to allow for this in determining a formula of this kind for two reasons. (1.) The error is small, probably not more than two per cent. or three per cent., as by far the greatest portion of the power is expended in overcoming gravity. (2.) It would mean introducing a quantity $V^{1\cdot2}$ or $V^{1\cdot5}$, which would make the work of determining the F.M. considerably more laborious. In what follows this point has purposely been neglected.

A Formula Embodying Gear Ratio.

From the above it is obvious that if we take the gear ratio between engine and road wheels into account the formula will become suitable for all machines.

The altered formula will be $\frac{W}{C \times T \times G}$, where G is the number of engine revolutions required to complete one revolution of the back wheel. Where 28in. wheels are used the gear should be increased to the equivalent with 26in. wheels.

We have now taken every variation into account, and the F.M. will be a true measure of the touring efficiency of the machine. Specially low geared machines are discouraged, and a glance at the tabulated figures given at the end of the article will show that the new formula has quite an interesting effect upon the performances of the various machines in the Glasgow Motor Cycle Club hill-climb of 1906. It is to be noted, however, that the gear ratios were not officially confirmed, as at that time the results were determined on Professor Callendar's formula. The members' hill-climb, held last September, also shows the merits of the suggested formula, which, I think it will be agreed, is a distinct improvement on the old one.

Comparing the two F.M.'s, there would seem to be no reason why all bicycles should not compete together in one class.

There is still another provision to be made in order that two and three-speeded machines may compete with the singles. Our object is to obtain a value for G, which may be termed the equivalent single gear of a variable geared machine, and in getting out an expression it must be borne in mind that an excessive reduction on the low gear is not desirable. Under these circumstances the natural solution of taking the arithmetical mean between high and low would scarcely fulfil the conditions.

To Obtain a Mean Gear.

The writer puts forward the expression $\frac{4\,L}{H}$, where H and L are the high and low gears respectively, which has the advantage of being easily calculated, and at the same time gives to a two-speeded machine an equivalent single gear which enables it to compete with single geared machines without dividing the classes. For three-speeded machines the equivalent single gear can conveniently be taken as the second speed, as, unless the gradient is exceptionally stiff or acute-angled corners are present, all the work will be done on second speed.

This article is put forward in the hope of improving and stimulating interest in hill-climbs, and if the formula is not generally accepted it is hoped that it will be the forerunner of a more suitable, if not the ideal one.

H. M. STICH.

The Glasgow M.C.C. Hill-climb, 1906.

CLASS I.—Single-cylinder engines up to 76 × 76

	Time slower than X the fastest. M.	S.	Weight. LBS.	Gear.	Figure of merit.	New figure of merit.
J. S. Fulton (3 h.p. N.S.U., two speeds)	1	38	372	5½ & 8	367	63.1
Jas. Kong (2½ h.p. N.S.U., pedalling allowed) ...	1	43	270	6	363	60.6
W. Dawson (3 h.p. Peake-N.S.U.)	1	2	305	5¼	341	65.
John Caldwell (2½ h.p. Excelsior)	0	56	308	5½	339	61.7
Jas. Ross (2 h.p. C.G., pedalling allowed) ...	2	42	242	6	333	55.5

CLASS II.—Single cylinder engines exceeding 76 × 76 and not exceeding 85 × 85.

Jas. Roberts (3½ h.p. N.S.U.)	0	28	340	5	358	71.6
Ronald Barge (3½ h.p. Minerva)	0	25	336	5¼	333	63.5
F. C. Holms (3½ h.p. Brown)	X		306	4¾	313	65.85
Jas. Craig (3½ h.p. Triumph)	0	33	332	4½	303	67.4
W. Hutchinson (3½ h.p. Minerva)	0	44	322	5	295	59.
J. Martin M. Carr (3 h.p. Midget Bicar) ...	1	32	308	5¾	290	50.4
Wm. Deans (3 h.p. Triumph)	0	46	268	4¾	290	61.15
Alex. McDuff (4 h.p. Roc)	0	51	349	4¼	279	65.7
J. D. Whitelaw (3½ h.p. Ormonde)	0	52	341	4¾	272	57.3
H. T. Watt (3½ h.p. Brown)	0	45	314	4¾	264	55.6
J. S. Bryce (3½ h.p. Quadrant)	0	53	308	4⅞	260	53.4
S. Kondo (3 h.p. Triumph)	1	27	274	4¾	255	53.7

CLASS III.—Multi-cylinder engines.

R. A. McMillan (4½ h.p. F.N.)	0	40	407	6	405	67.6
C. H. McMillan (4½ h.p. F.N.)	0	56	395	6	369	61.5
R. Buchanan (4½ h.p. F.N.)	1	44	363	6	287	47.8
H. H. Simpson (5 h.p. Vindec)	0	2	368	4¾	261	55.
J. D. Gillespie (5 h.p. Vindec)	0	14	375	4½	252	56.
J. D. Pottie (5 h.p. Peugeot)	0	38	387	4	237	59.35
Alex. Graham (5 h.p. Rex)	0	35	416	5	236	47.2
R. Watson, jun. (5 h.p. Rex)	0	10	342	4½	216	48.
Tom Black (5 h.p. Rex) ...	1	17	353	4½	171	38.

CLASS IV.—Tricars.

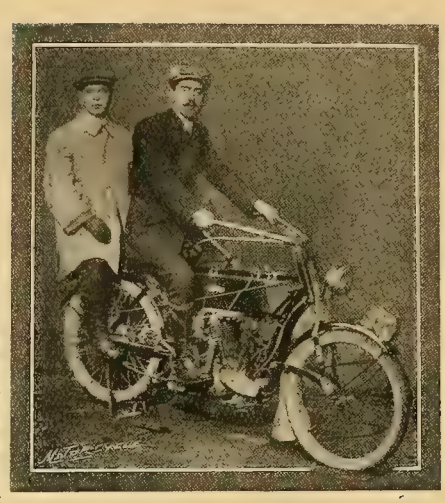
D. M. Syme (9 h.p. Riley)	3	4	1176	—	290	—

The Rich Detachable Air Tube Co. have opened new premises on the main Brighton Road in Crawley, near the George Hotel Garage, where they will be pleased to show motor cyclists their improved air tube.

The United Motor Industries, Ltd., have sent us samples of an ingenious puncture-repairing stud, called the Comete. It is made of indiarubber, and outwardly takes the form of a large drawing pin, the centre of the stud or spike being hollow. To repair a puncture, the stud is forced into the hole and a leaden shot is pushed into the hollow part of the stud. The shot expands the stud and locks it to the air tube,

To Switzerland and Savoy

By H. HOWARTH.



The country we passed through from Pontarlier to Besançon was very pretty. At Besançon, where we stayed the night, a fête or fair was in full swing, and as it was Sunday, the difference between the French and English methods of observing the weekly holy-day was very noticeable. The shows here are more elaborate than in England, but the performances are equally disappointing. We disbursed half a franc on a menagerie, where a dyspeptic lioness and an aged bob-tail lion were made to jump through rings and over hurdles when they really should have been asleep, poor things.

A Troublesome Tyre Leak.

After leaving Bescançon we were troubled with a leaking patch. Twice the back tyre went down, and each time we failed to locate the puncture, so we sought out a cycle agent in Gray, and instructed him to remove the tube and change three of the patches which we most suspected. We left him struggling through the task at his workshop door, in the broiling sun, whilst we adjourned for lunch.

After this the tyre held up well for a time, and we reached Langres at dusk, after an uneventful run. This town has many interesting features. Its fortifications, which must be very old, are kept in remarkably good repair, and even the heavy drawbridges, over which all traffic has to pass at the various city gates, are in perfect working order.

From Langres we proceeded to Chaumont, by the banks of the pretty Marne river. The day was extremely hot, and we stopped once or twice for a quiet smoke in the shade. Once we overtook a fruit cart, and, after waking up the driver, we purchased a prodigious quantity of peaches, cherries, and oranges—all fine fruit—for sixpence. I would here remark that on most of the slow-moving carts we met in France the driver seemed to be asleep; in some cases he would be perched at the rear of the vehicle with his back turned to the direction of travel. Apparently these drivers consider rules of the road superfluous, allowing their mules or bullocks to wander along at their own sweet will, with complete disregard to the needs of other road users.

Arriving at Chaumont, we took the road through Bar-sur-Aube to Troyes. We had so far come across none of the level stretches of country which so tired us when crossing France by way of Yonne and Côte d'Or. The roads were straight but undulating, and as one could only see a short stretch of the road at a time, a touch of variety was given which was found very welcome.

By Motor Cycle.

(Concluded from page 61.)

Whilst travelling on this "switch-back" road we had an exciting race with a big Fiat car, which flew past us at the top of one of the gentle inclines, swept down into the hollow, and was at the top of the next slope before we were half-way up. Loth to spoil the record we so far held of being passed by nothing on the road, I crowded on full throttle and felt for the best mixture. The lusty twins answered readily, and the machine lept over the ground at a speed it had never previously attained. In spite of this we only gained slowly; but at the top of every indulation we made some headway, and after a time we passed the car on the up grades, only to fall behind again on the descents, the car being capable of an immense speed downhill. For awhile we kept passing and repassing each other as the car's speed varied—a most hair-raising experience at the speed we were travelling. The driver of the car entered into the spirit of the thing, waving his hand and shouting as he passed us, my friend behind answering with English witticisms when the positions were reversed. Eventually we drew ahead, just before entering Troyes.

At Troyes some difficulty was experienced in finding the way. Once clear of the town, however, we made good time through rather commonplace country to

A gateway at Langres.

To Switzerland and Savoy by Motor Cycle.—

Nogent and Provins, our destination for the night. Thus far we had been making towards Paris, but we now decided to avoid the city and make our way north by way of Chateau-Thierry and Soissons. Our reason for this was our strong objection to the *pavé*, which is present on almost all roads near the capital, and we also wished to avoid the miles of traffic.

Another Tyre Trouble.

From Provins we proceeded by devious byways to Montdidier, where we joined the main road again, and were rattling along at a good pace when we were informed by the distressful bumping of the rear rim that the tube had once more sprung a leak. Suspecting the same trouble we had experienced at Gray, we inflated the tyre straight away, and to our satisfaction it held.

The country improved vastly as we approached Chateau-Thierry, in entering which town we descended the hill so well known as the venue of many French hill-climbing contests. This, although long, is one that I should think any modern motor cycle would ascend with ease. Arrived in the town, the air once more decamped from the rear tube. This time it occurred conveniently outside a garage, where, to put an end to the trouble, we purchased a new inner tube —we had carried no spare through lack of space—and leaving the machine to have the tube fitted, we went forth in search of the ruined Chateau and other sights, returning for the Vindec late in the afternoon.

Nothing of note occurred between here and Boulogne. The tone of civilisation and almost English appearance of the northern towns left no room for doubting that we were nearing home, and after spending our last night in France at Amiens, we found ourselves, at three o'clock on the Thursday afternoon, rattling over the cobbly thoroughfares of Boulogne, our continental holiday almost at an end. The harbour life of this rather fishy town is full of interest to the visitor, and time passed quickly until the time for the departure of the Folkestone steamer.

It was night when we went on board, after seeing the motor cycle swung high in the air by an immense derrick, to be dropped with wonderful gentleness into its place in the steamer's baggage-hold.

The busy quay, with its shrieking locomotives, rattling cranes, and all the other noisy paraphernalia of commerce, presented a striking contrast to the calm quietness of the Channel; and as we watched the twinkling lights of Boulogne grow ever fainter on the horizon, our thoughts reverted to the scenes that we had left, and we realised with some regret that the snow-topped craggy peaks, the wild defiles, and fairy-tinted lakes of Switzerland and Savoy were now but memories.

Here I will bring my rambling account to a conclusion, and keenly conscious as I am of my inability to present the many charms of this Alpine country in the manner they deserve, I can only hope that these lines will have been the means of stirring up a desire on the part of other motor cyclists to follow our example.

Cost of Running the Motor Cycle.

A few words as to the expenses of the holiday will probably be found of interest. It must be noted that ours was a powerful twin, rather a gourmand for petrol, carrying two ten-stone riders. Roughly, our expenses for the machine were as follows:

Petrol (2,000 miles, approx.) ...	£2	0	0
Oil		4	6
Repairs to tank and tube		6	6
New inner tube (650 × 65 Continental)		18	0
Total (seventeen days) ...	£3	9	0

To this must be added depreciation of rear cover and belt. The same pair of Peter Union tyres were in use throughout the tour. For the belt—a 1in. Stanley Dermatine—I have nothing but praise.

Cross-Channel expenses amounted to about 18s. for the machine and 26s. each for the passenger fares.

Hotel accommodation is, of course, an item that depends on the individual taste and depth of pocket of the tourist, but it may be taken for granted that once on French soil the daily expenses under this head can be kept much lower than in England.

Finally, I shall be only too glad to assist, as far as I am able, anyone thinking of taking a similar tour to ours; for those who do once try the Alps as a touring ground will never regret the experiment.

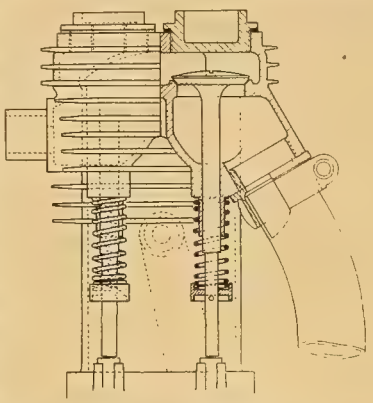
Pont Morand.

On the road to Flumet.

Pont de Bellecombe.

THE DESIGN OF EXHAUST PORTS.

IT is evident that a perfectly clear exit for the exhaust gases, with an exhaust pipe equal in area to the valve opening must tend towards an effective and cool running engine. It is useless to increase the size of the valve unless the exhaust port is enlarged in proportion, and the Rex Motor Manufacturing Co., Coventry, have recognised this by designing all the 1908 patterns with liberally sized port holes and exhaust pipes. The illustration herewith is a reproduction from a part sectional drawing of the 3½ h.p. single-cylinder engine, and the design of the port and pipe, which latter has a straight run right into the expansion chamber, can be clearly seen.



One of the most frequent causes of overheating is the bad design of the exhaust port, with insufficient clearance for the burnt gases; the exhaust pipe is also very often too small in area. If these faults exist it is little benefit to increase the bore and stroke of the engine, as a motor with a smaller cylinder and larger exhaust port would give better results.

TOURIST TROPHY NOTES.

In addition to the new fuel consumption limit for the International Motor Cycle Tourist Trophy Race mentioned on page 59 last week, viz.—

	Miles to the gallon.
Single-cylinder machines	100
Multi-cylinder machines	80

the Competitions Sub-committee of the A.C.U. has further agreed to recommend to the General Committee that all competing machines shall be without pedalling gear. All engines will be tested for silence by the judges prior to the race, and any machine that is, in the judges' opinion, not efficient will be disqualified if the fault be not rectified. The entrance fee will be the same for private owners and trade riders, viz., £5 5s. per machine, and the distance of the race is to be about the same as last year. If possible, the same course will be used.

The Affiliation of Motor Cyclists.

IT is quite possible that by the time these lines appear in print the Auto Cycle Union will be in a position to announce a new affiliation scheme for provincial clubs.

This scheme has been arranged by the committee and sub committees of the A.C.U., and will, I believe, come up for consideration at the annual general meeting in March.

Will the Scheme Please Everyone?

Certainly not. There are certain to be what we may term "weak spots" in it; but shall we reject it on that account? No, by no means—what we must do is "affiliate" now, and then when the scheme comes up for ratification, as it no doubt will, let us approve or disapprove of those strong or weak points, as the case may be.

It is the duty of every motor cyclist to carefully consider the scheme in detail, and to see that the committee of his club considers it, if he belongs to a club; and while, as I have said, he may not agree with all of it, let him note what he does not like, and then later on let us get it made as nearly perfect as possible.

This agitation has now been going on for a long time, and, as a result of it, certain reforms have been obtained. The committee appointed at the Lincoln Conference has worked hard. Some of its members are also members of the A.C.U. and others are not; but now the outsiders propose coming inside, not because we are satisfied with things as they are, but because we can do no more good in our present position. What we now want is for motor cycle clubs to join the A.C.U. and elect their delegates to serve on the council; then the affiliated clubs will be strong enough to compel more attention in the future than they have received in the past. I have sent out nearly 100 circulars regarding this question to hon. secretaries and others having a keen interest in the matter, and I hope they will place it before their committees as requested.

Will there be Two Motor Cycle Organisations?

I hope not. It all depends upon how far motor cyclists and motor cycle clubs support the A.C.U. If they stand aloof and say they will not join until such and such reforms have been made they will be doing an injury, not merely to themselves but to many others, because it is a habit of this age—a bad one no doubt—to wait and see what others will do, and to follow their example. The thing to do is, let all of us affiliate to the A.C.U.—and by voice and votes make it absolutely supreme, make it what it should have been years ago. That is what many of us have been working for, but we cannot go on for ever without help. Several of us up North have been working hard for the provincial clubs. What we want now is for them to back us up by their presence or their vote in the council—that is the duty of motor cycle clubs everywhere, and if they will do their duty we will do ours. There will then be no room for a second body, no danger of clashing of interests of two competing motor cycle organisations.

About Expenses.

Some small clubs say they cannot pay certain affiliation fees because, taking the amount together with their expenses to and from the council meetings, it is more than their clubs can afford. Now as to the affiliation fee, the amount for the first year may have to be more than many wish to pay; but will not that be more than compensated for by the increased membership the club will get through its being affiliated? Its position being so much stronger it should naturally attract riders to it for the increased benefits it can offer.

As to train fares, this is not a large item when one remembers that it is not necessary for councillors to attend all the meetings unless they really wish to, as they can get councillors to vote for them, and can appoint a substitute to speak and vote for them, and it is the votes which are so much wanted at the present time.

Nothing does a sport more harm than suggesting that certain individuals have other than sportsmen's reasons for doing the little they do, *i.e.*, that they have an axe to grind. I have had the pleasure of owning at different times five motor cycles during the last few years, but I have never ridden one of them in a competition of any kind whatever.

The Whole Thing in a Nutshell.

In conclusion, let me say that time is short. The scheme may not be all we desire, but affiliate and take your share in making it into what you wish it to be—an absolutely independent organisation for motor cyclists, supported and governed only by motor cyclists. That is my ideal. I make no secret of it. I for one shall never be really satisfied with less. Clubs affiliating now will be able to take part in the annual general meeting of the A.C.U. to be held in March, when officers will be elected for the year. Clubs wishing to take part in that meeting should affiliate at least seventeen days before the date of the meeting.

When a club wishes to affiliate it should send a full list of the names and addresses of its members, and a copy of its club rules, to the secretary, Mr. F. Straight, 18, Down Street, Piccadilly, W.

JOHN H. HALL.

OCCASIONAL COMMENTS.

By "IXION."

Tall Talk.

In the more miserable moments of my motor cycling experience I have sometimes thought we motor cyclists occasionally exaggerate when eulogising the machines we ride, but listen to the following extract from a correspondent's letter in an American paper. The writer first of all described a hill he climbed—"Sutton Bank was a mere toy alongside." Those who have climbed Sutton will realise this statement takes some digesting. Then he states this hill is five miles long. Ye gods! Five miles of Sutton! Further, the "road" is five feet wide, and the surface is sand, varying from 8in. to 10in. deep. He strapped himself to the saddle and went up at a fast pace, without dismounting or touching a pedal, but the vibration was so terrific that the "legs of my stand were continually coming off." This statement leaves me wondering whether his stand was a centipede type, or whether the previous statement about not dismounting is a trifle overdone. I conclude that the American air has a most marvellously vivifying effect on his motor cycle, or else that his description of this nightmare of a hill is slightly overdrawn, or else—that he did not climb it. Brethren of the wheel, let us be grateful that English correspondents are such modest folk. But I should like to see that hill, as I know men who have climbed Sutton and are sighing for fresh grades to conquer. They would have a poor chance, however, as Sutton is rough enough for anything, and towards the finish the pace is not terrifying.

Governing a Tricar Engine.

A friend informs me he is going to govern his big tricar engine as follows: The long rod from clutch pedal to clutch fork carries two stops, which equalise the movement of the pedal with the movement of the clutch itself. He is going to sweat a second throttle into his inlet pipe, and connect the actuating lever of this secondary throttle to the clutch stops, so that whenever his clutch is out his throttle will close. I would recommend him to first construct a throttle to entirely cut off the gas supply, and, after drilling a small hole through it, to gradually increase the size of the hole till it passes just enough gas to keep the engine running. The idea has one serious defect—when the tricar is restarting on a stiff hill the engine will not be running at full power till the clutch is well home. He should therefore connect the throttle so that it opens wide before the clutch is fully home. I must say I prefer a device I employed two years ago. Exhaust valve lifters were fitted to both cylinders, and coupled up to a small pedal set so close to the clutch pedal that I could actuate both clutch and governor together or either separately at will. I feared explosions in the silencers when constructing this device, and so added a press-button switch on the steering wheel; but I do not remember ever having an exhaust box explosion. No doubt the cheapest method of all is to fit a new throttle lever on the top of the steering wheel; on tricars possessing this fitment any clever driver can change gear without racing his engine. I often see tricarists banging their gears in without governing the engine at all; but this inevitably results in damage to the gears.

Pedals and the T.T.

I am very glad to see the use of pedalling gear abolished in the Tourist Trophy Race. Admitting that there are riders who regularly depend on pedal assistance in touring, there is no doubt that in a race of this description it should be barred. Anyone who watched the last race will admit that pedals were used in ways in which they would never be employed in ordinary touring, when the engine is not so carefully nursed. Again, I should like to make the race as far as possible a test of machines, and as little as may be a test of riders; therefore I am glad there are to be no pedals.

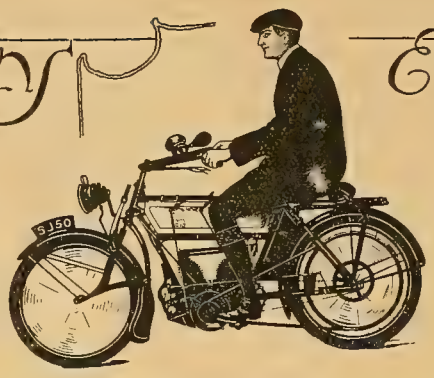
The Hill-climbing Ban.

The exact position with regard to speed events on the road does not seem to be fully comprehended. Let me say, therefore, that the R.A.C. has only banned *open* events among its affiliated clubs; hill-climbs limited to members of the promoting club remain quite as legal as formerly. The question of motor cycling events has not been dealt with, as the R.A.C. leaves the control of motor cycling to the A.C.U. This explains why the A.C.U. timed the machines up Dashwood and Amersham hills in the first quarterly trial of the year. The whole business savours somewhat of hypocrisy in effect, though not in actuality. Unless further steps are taken, speed hill-climbs will be as common and as fiercely contested this year as last. But a distinct provision for the public safety enters into the matter, as the idea is a local club will be anxious not to offend local residents and local authorities, and if local motorists offend by furious driving in practising up a hill, they can be recognised and ostracised or otherwise brought to book, much more certainly than a stranger from a distance. The weakness of the notion is that all clubs, and especially car clubs, include in their membership owners residing in distant parts of the country, who have joined the club simply to compete in its closed events and advertise cars they are interested in by winning hill-climbs. If local clubs, therefore, wish to make this provision of any real value, they must limit their events to members residing in the vicinity. Otherwise it becomes a dishonest measure, calculated to delude the public. There are other reasons why club members in general would like to see local events contested only by local owners, and this applies to motor cycle climbs as well as to car events. These facts affect a good many motor cyclists who only own one machine, and who prefer a single-cylinder for ordinary use, but buy a twin-cylinder with an eye to the most sporting class in a couple of annual hill-climbs. I should, therefore, like to see the A.C.U. publish its intentions in the matter as soon as possible.

Sidecar Tyres.

Several readers have written asking me what size of tyre to fit on the sidecar wheel. My advice is in favour of using the same size of cover as on the rear wheel of the cycle. The extra weight and friction of a tyre that is over large is quite outweighed by the convenience of being able to interchange worn covers and patched tubes.

Questions & Replies.



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned numbers must be used, the writer to keep a key for reference.

All queries should be addressed to the Editor. "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, must be accompanied with a stamped addressed envelope for reply.

Change Speed Gears for Sidecar Work.

I have a 3½ h.p. Minerva motor cycle, and have just bought a Montgomery sidecar. (1.) What change-speed gear and free engine would you recommend? (2.) Should I be able to start from a standstill with passenger seated? Should I be able to take normal hills with passenger?—L.W., Birmingham.

(1.) See regulations above, and send a numbered list of gears which you think would suit you. (2.) Yes, you should be able to start from standstill with a passenger in the sidecar, and take ordinary hills without trouble if the passengers' combined weight does not exceed twenty stones.

A Bicycle suitable for Passenger Attachment.

I want to replace a 3½ h.p. single-cylinder engine, accumulator ignition, with something better for sidecar work. Will you kindly say—(1.) Does the twin-cylinder in your opinion compensate in power, smoothness of running, etc., for the extra trouble and liability to go wrong, which seems to me incidental to adding another cylinder? (2.) And taking into account the fact that a twin would give me, I presume, all the power I want to pull a sidecar (weight of both riders under twenty stones) without the aid of the two speed. We are in a fairly hilly (but not excessively so) country, as you probably know. (3.) Would you prefer to adopt twin and drop two-speed and free engine? (4.) Is magneto much to be preferred to accumulators on score of lessened trouble? As to sidecar, which do you favour? No. 1, fixed; 2, flexible; 3, castor wheel.—L.S., Mon.

(1.) Yes, if you have had some experience with motor cycles a twin-cylinder is highly advisable for sidecar work. (2.) Provided you had a good two-speed gear fitted, a well made twin-cylinder machine would be the best thing you could buy. (3.) If possible, have a twin-cylinder and two-speed gear, but if you cannot have this, have a single cylinder and two-speed gear. (4.) We recommend magneto ignition if you do not object to the extra cost. With regard to the sidecars, each has its advantages, and it is a question of personal taste. Even our own staff are not of accord as to the best form of sidecar.

Carburetter at Fault.

I have a 3½ h.p. Kerry, bought second hand, which is very hard to start. The carburetter is a Brown and Barlow. With throttle in any position I cannot open air inlet, or it slows down immediately. The jet looks rather knocked about, and the choke tube is cracked in three places. Would it start better if I closed up the holes under the spraying chamber round the jet? There is a good spark, accumulators fully charged, wiring right and compression perfect. It is a splendid hill-climber, but seems to get rather hot.—J.A.H., London, N.

It seems obvious that the engine will not take in air for two reasons. Firstly, because the jet is knocked about and probably half closed up, and secondly because the choke tube is cracked, allowing the passage of an excessive amount of air, which is not drawn past close to the jet but away from it. If you fit a new jet and new choke tube your trouble will cease.

Fitting a Sidecar Attachment.

I am thinking of fitting a sidecar to my 3½ h.p. twin-cylinder Werner. Will the ordinary sidecar fit this machine, as the tubing of French machines seems to be smaller than on English ones? Would this machine take a sidecar with ten stone passenger up Barnet Hill with pedal assistance? It goes up now with eleven stones very fast, throttle nearly shut, and spark advanced. The machine has small lug with hole in at head of frame. Is this anything to do with sidecar? Would it be any advantage to have 1in. belt in place of ⅞in., which is sunk in pulley?—H.C., Camden.

You should have no difficulty in fitting a sidecar to your motor bicycle. When ordering it is advisable to tell the makers the size and section of the chain stay, and the diameter of steering head and down tube. If the tube is a little smaller than usual the joint can be easily packed with leather or similar material. The machine in question should take you up Barnet Hill with sidecar with a gear of about 5½ to 1 with pedal assistance. The lug at the head of the frame is probably for a sidecar attachment, but it is impossible to say without a personal examination. A 1in. belt would certainly be better.

Three-speed Hub on a Lightweight.

I have ordered a magneto Motosacoche with spring forks and three-speed geared hub. After reading recent issues of *The Motor Cycle* I have formed the opinion that I perhaps haven't done the wisest thing to order the three-speed hub. Have you had any experience of this geared hub? If so, what are the disadvantages or the advantages? Having no experience of motors I had formed the opinion that it was an ordinary three-speed bicycle hub, and that the hub had no connection with the motor. The price, £2 2s., also led me to think that. Will the gear in any way affect the reliability and wear of the machine? How much will it increase the weight?—A.B., Bradford.

The three-speed pedalling hub would be a considerable advantage, but you must bear in mind that it is a bicycle and not a motor cycle fitting. The advantage will be that you will be able to use the low speed pedalling gear when starting the machine, and the high speed pedalling gear for assisting the machine up-hill. The added weight will be negligible, say about one pound.

Fitting a Sidecar Attachment.

I have a 4½ h.p. four-cylinder F.N. motor cycle, and I should be very glad if you would advise—(1.) Would it be powerful enough to take a sidecar, and what gradient would it take (with two ten stone passengers) without two-speed gear? (2.) Are there any firms in Paris who sell sidecars (I have never seen one in France)? (3.) What would be the tax I should have to pay at the French Customs House if I bought one in England and had it sent over?—J.P., Paris.

(1.) The machine in question should take a sidecar on fairly level roads, but you could not expect it to take a passenger up a gradient of more than 1 in 14. This machine is not designed to take a two-speed gear. (2.) The only firm we know of in Paris who would sell you a sidecar is the N.S.U. Motor Agency, 39, Quai Valny, Paris. (3.) There is no exact duty specified on sidecars, but if you get one from England it would probably be charged at the motor cycle rate, viz., 220 francs per 100 kilos., or £4 9s. 5d. per cwt. The average weight of a light sidecar is 56 lbs.

An Amateur's Chances in the T.T. Race.

I intend getting a new motor cycle. With an ordinary standard machine as listed would it be any use entering for the Tourist Trophy Race? I notice that nearly all last year's riders who made a good show were trade riders on so-called ordinary standard motor cycles! Has an ordinary rider like myself with six months' experience (not a genius at tuning up) got any other chance than to make himself ridiculous and a laughing stock for other riders, or would you advise me to wait?—T.P.H., Bayswater.

What you had better do is to wait until the official regulations for this year's Tourist Trophy Race are issued. It will not be long before the details are out, and if you delay purchasing your machine, say for a fortnight or three weeks, you might possibly get a machine which would conform to the rules on the same terms as those for which you are purchasing an ordinary machine. With regard to your prospects. If you are a good rider you would stand a very fair chance. We presume you intend entering for your own pleasure and not for that of other people, and our advice to you is that if you are keen about it, by all means enter. If you decide to do this we wish you success.

Hints on Timing Engine.

Would you favour me with instructions as to how to time my 2 h.p. Minerva with mechanical valves? I took it to pieces a few days ago, and find wheels are marked wrongly. Have put it together twice, and find it will not start, so wheels must be marked wrongly. Does the piston have to be dead at top when engine fires?—J.W.D.

Full instructions for timing an engine are given in "Motor Cycles and How to Manage Them." The timing of the spark is already done for you. What you have to do is to get first the timing of the exhaust valve right, and you should so set the cam wheel that the valve is closed when the piston reaches the top of the exhaust stroke. The cycle of operations should then be followed, and it should be seen that the inlet valve closes as soon as the piston has reached the bottom of the inlet stroke. Unless you have altered things the firing cam is attached to the exhaust cam, and that is why we have said that the time of the firing is done for you. If, however, it has been altered for any reason, you should set the spark so that it takes place with ignition lever two-thirds retarded, when the piston is at the top of the compression and firing strokes.

Starting from Cold.

I have just purchased second-hand a 2½ h.p. J.A.P., Chater-Lea frame, 26in. wheels. I may say I have read "Motor Cycles and How to Manage Them," but cannot discover the cause which makes my motor cycle so difficult to start. I have had cylinder down and cleaned same, also cleaned out carburetter, which is F.N. with bell-shaped hot air inlet round engine. Kindly inform me how contact breaker should be adjusted for easy starting, and if there is anything else I can do to cause same to start easily? I may say the gear is 4 to 1, but machine climbs remarkably well considering there are no pedals. The machine weighs 110 lbs., and the engine is upright in loop of Chater-Lea frame, and appears to jump when going, notwithstanding there is no play. At present I have to run alongside at high speed to start, and when engine starts same goes off very quickly, making it difficult to get into saddle.—H.G.D., Hants.

The trouble you experience in starting is entirely due to the absence of pedals. When the latter are fitted the machine should be placed on the stand, a few drops of paraffin injected in the cylinder, carburetter flooded, and the engine will start if all is in order at the first turn of the pedals, without the least exertion. This time of year especially, engines are often very hard to start from cold by running alongside, unless the air is almost entirely shut off. A gear of 4 to 1 is too high unless you are a lightweight; if not, you might reduce the gear to 4½ or 5 to 1. The contact breaker points should not be bearing too hard together for easy starting, and the spark advance lever should be nearly fully retarded, so that engine will not start off too quickly.

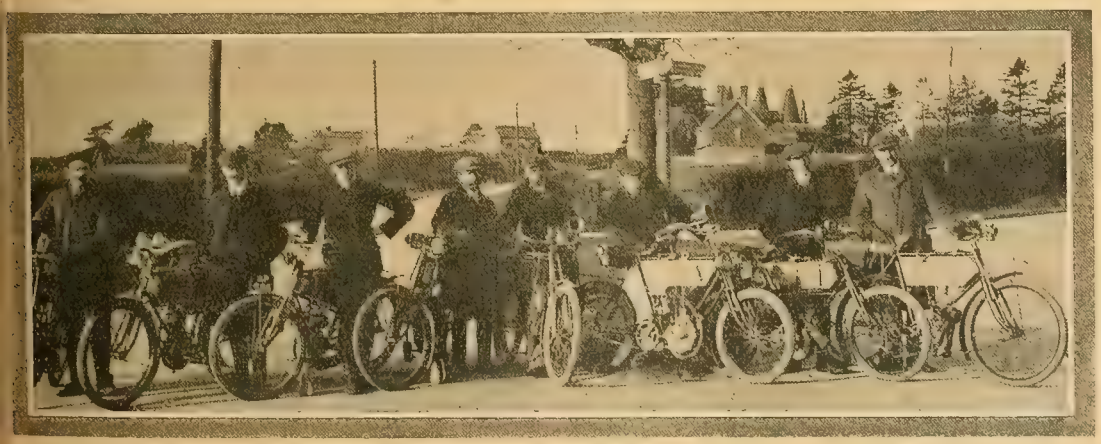
Gear for a Light Tricar.

(1.) How much h.p. would the Chater-Lea variable speed pulley on engine shaft absorb in friction? My tricar weighs 3¼ cwts., and has a 5 h.p. engine. (2.) Is there any fear of belt slipping on hills? (3.) Would either Roc or Phœnix back hub (belt) gear go into the forks 6½in. wide? (4.) Is the Phœnix gear fitted with a clutch or dog teeth? (5.) What is the weight of the Kent three-speed gear complete for belt drive? (6.) Is ⅜in. thick enough for spindle which goes into back fork ends?—W.W.

(1.) Without proper tests which would entail special appliances it is impossible to tell you how much the amount of power absorbed will be, but in any case it will be practically negligible. The jockey pulley absorbs a little power. (2.) The risk of the belt giving trouble through slipping would also be little more than in the case of ordinary belt transmission, because the jockey pulley would tend to counteract the slipping when on low gear. (3.) We do not think that either of the two-speed geared hubs mentioned would go into ordinary forks 6½in. wide, but it would be best to write the makers. (4.) With the Phœnix gear dog clutches are used to engage the high speed, and a friction clutch to engage the low speed. (5.) We regret we cannot tell you the exact weight of the Kent gear, which, by the way, can only be used with chain transmission, but we should imagine it to be about 12 lbs. (6.) ⅜in. is rather slender for a 5 h.p. tricar back wheel spindle. We should suggest 7-16th or 9-16th. The best thing to do would be to purchase one from the Chater-Lea Mfg. Co., telling them the weight and horse-power of your tricar.

Motor cyclists residing in Manchester and district should note that the lamp mentioned on page 69, January 22nd, can be obtained at the Triumph Cycle Co.'s depot, 160, Deansgate.

Those riders who do not find a 2¾ h.p. engine sufficiently powerful will be interested to hear that the Gradior Machine Co., Stafford is prepared to convert their engines to 3⅜ h.p. by fitting a new cylinder of 3¼in. bore and a new piston. The result is said to be quite satisfactory.



Lamberhurst motor cyclists.

Lamberhurst is a small village in Kent with less than 1,700 inhabitants, and there are eight motor cyclists in the village. "Is this a record for a village of the size?" asks Mr. P. F. Playfoot, who kindly sent us the photograph.

CURRENT CHAT.

Special Features.

THE A.C.U. QUARTERLY TRIALS.

FORMULA FOR HILL CLIMBS.

"The Motor Cycle" Buyers' Guide.

In the issue after next the Buyers' Guide, containing a complete list of motor cycles on the British market, will be published. It will include a specification of each machine mentioned.

The Manchester Show.

We are informed that the section devoted to tricars and motor bicycles at the Manchester Motor Car Show, to be held at Belle Vue, Manchester, February 21st to 29th, will be even better supported than at last year's show.

C.T.C. Affairs.

An amicable agreement has been arrived at between the two parties in the Cyclists' Touring Club, the result of which is that the vacancies on the ruling body are being filled up by consent, and the council is now almost fully constituted, so that it may meet for transaction of the business of the club early next month.

Tricar for Fire Brigade.

We congratulate Beckenham motor cyclists upon the enterprise of their local authorities, who have vetoed trams and speed limits. Now they propose adding a motor tricycle to carry two firemen and patent extinguishers to their fire brigade equipment as a "first aid" appliance. In the race to any outbreak the machine should be an easy winner

The End-to-end Trial Next July.

We had the pleasure of a visit from Mr. Oscar Hedstrom, of the Hendee Mfg. Co., of U.S.A., last week, and he informed us that he and Mr. T. K. Hastings hope to visit England again in July with their Indian motor cycles in order to accompany the riders in the Land's End to John-o'-Groat's six days' run. There has been talk of a team of American riders coming over for this trial.

The Tourist Trophy Race.

Some further interesting news regarding the Tourist Trophy Race for Motor Cycles are given on page 80 of the current issue. October is a late month in the year for competitions, as the weather is usually so unsettled at that period, but we read in the R.A.C. *Journal* that it was a question of October or not at all, so the offer of the Isle of Man authorities was gratefully accepted. September would have been the ideal month for the holding of the competition.

British Racers in the Grand Prix.

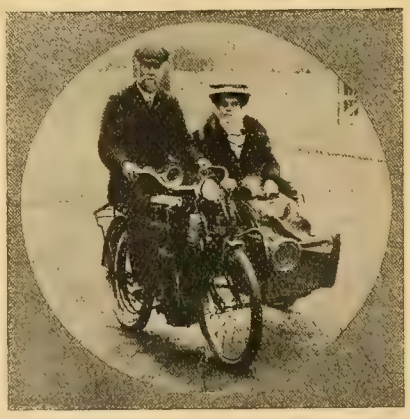
We hear on good authority that a prominent English motor cyclist will drive one of the British racing cars in the Grand Prix Race next June.

The Military Motor Cyclist.

In the winter issue of *The Military Cyclist* the following announcement is made: "The motor, both as cycle and car, is now becoming such a useful asset to an army that we have decided to open our pages to the military side of motoring. We shall appear next issue as *The Military Cyclist and Motorist.*"

A Stupendous Ride Proposed.

Lieut. Edward Noel, of the Royal Artillery, writes from Bombay that shortly he hopes to try to ride his 3½ h.p. Triumph motor bicycle home to England. He will start riding at Baghdad, and passing through Aleppo, Eregli, and crossing Asia Minor hopes to arrive at Constantinople, and thence through the Balkans, and home *viâ* Austria, Germany, and France. He is now equipping his machine with a change-speed gear and other necessaries for such a hazardous and long journey. Lieut. Noel anticipates that one of his most serious obstacles will be in obtaining supplies of petrol on the journey. The longest distance for which he will have to carry it will be about 700 miles. He proposes to store it in a tank on the luggage carrier, and the lubricating oil in an extra tank between the seat tube of frame and rear wheel. The difficulty of taking a motor bicycle through uncivilised countries lies in the fact that on a machine of this kind comparatively few spares can be carried, so that if Lieut. Noel accomplishes his ambition it will be the most marvellous ride ever made on a motor bicycle. We wish him the best of success.



A reproduction from a photographic New Year card received from Mr. and Mrs. W. E. Sorrell. The greetings were in the Maori language as well as English.

Increase of Motor Cycles in London.

From October 1st to November 30th, 107 motor cycles were registered with the London County Council, bringing the total to 7,891. There were 7,380 motor cycles registered at Midsummer last, so that the increase in London alone has been at the rate of 511 in five months.

Papers before the A.C.U.

Mr. H. G. Cove has kindly undertaken to read the paper on "Motor Cycle Tyres and Accessories" one evening in the first week of February. This will be followed by a paper at the end of February on "The Future of Motor Cycling," by Mr. H. G. Bell, and in March Mr. Arthur Candler will read his paper on "Motor Cycle Touring."

Silencers on Motor Cycles.

In last year's competitions many competing motor cycles were fitted with very inefficient silencers, and this year it is the intention of the Auto Cycle Union to pay special attention to this matter. Undoubtedly half the prejudice that exists against motor cycles is due to the noise some of them make. The decision of the A.C.U. is to be commended, as it is not at all a difficult matter to effectively silence the exhaust of a petrol engine.

A Day's Run of 310 Miles.

We frequently hear of long distances being covered in a day's ride on a motor bicycle, but so far as we can recollect, the following is the best ride we have heard of, excepting in London-Edinburgh and similar twenty-four hour rides: Mr. Wm. J. Clarke, of Louth, Lincs., writes that a few weeks ago he rode 310 miles in a day, and what is more remarkable, the machine he used was an old 2¾ h.p. Strawson, which has run on an average (winter and summer) 500 miles per week for four years. Starting from Louth on the day in question, he rode *viâ* Horncastle, Sleaford, Grantham, Melton Mowbray, Leicester, and Nuneaton, and spent two hours in Coventry before starting on the return journey.

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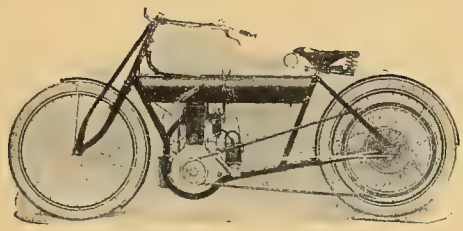

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45 guineas.

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weighs 75 lbs.

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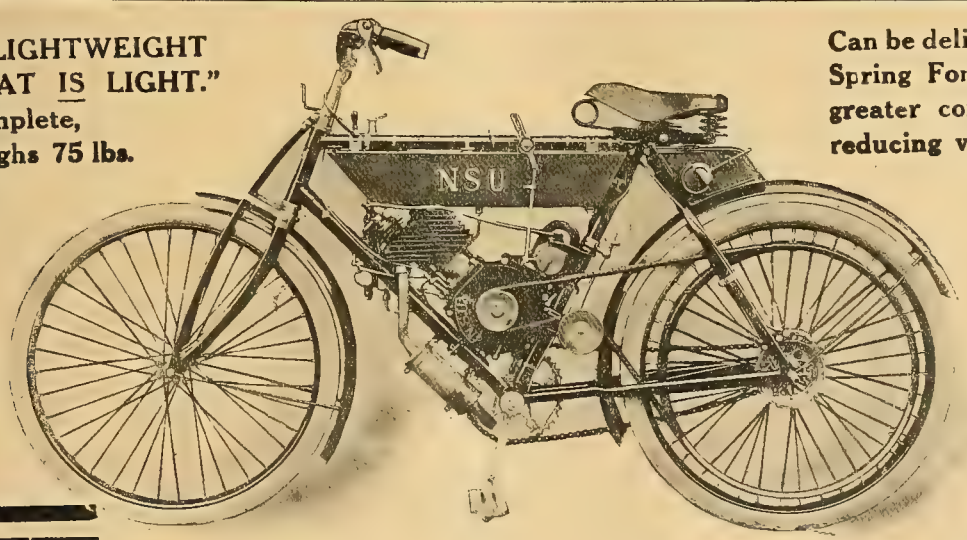

Perhaps you prefer a Lightweight ?

One that is light, handy to manipulate, flexible in traffic, speedy on the road, powerful on hills, yet economical in petrol consumption and general up-keep. One that shuns repair shops and roadside breakdown. If you would have a lightweight which answers to the description above, you must have the famous

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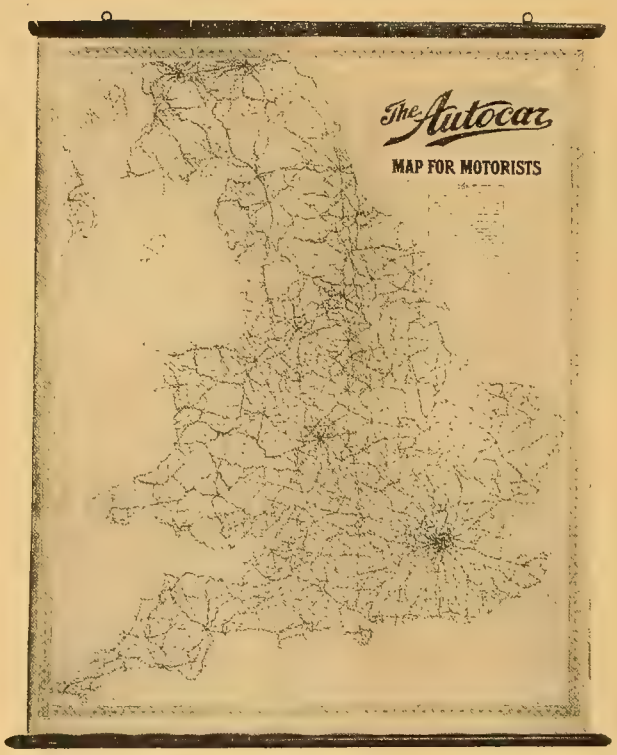


Size, 4 ft. 8 in. x 3 ft. 9 in. Styles 1 and 2 mounted on strong rollers.

Supplied in three styles—(1) Large hanging map, varnished, with roads marked plainly in red and showing distances between main towns; (2) unvarnished and printed in black, on material suitable for marking in roads covered or to be covered; (3) folded map, in strong case, suitable for carrying in kit or on tricar.

The price for each map is the same. When ordering please state which is required.

Obtainable from

"The Motor Cycle" Offices, 20, Tudor St., London, E.C.

Open Hill-climbing Competitions.

As previously explained in *The Motor Cycle*, the Royal Automobile Club's veto on open hill-climbing competitions does not extend to motor cycles. The R.A.C. has made no announcement regarding motor cycling events, and the question concerns the governing body of motor cycling, the Auto Cycle Union.

Machines in the Quarterly Trial.

The excellent entry for the Quarterly Trial on Saturday last—the first motor competition this year—augurs well for 1908. Of the entries there were seventeen machines with twin-cylinder engines, and twelve with single-cylinder engines, and of the total sixteen were equipped with magneto ignition.

Auto Cycle Union Notes.

Our readers are doubtless aware that a first agreement between the A.C.U. and the R.A.C. is now under consideration, and also between the A.C.U. and the clubs affiliated to it. Of these schemes the former is practically complete, and only needs to be put before the Royal Automobile Club Committee for adoption. With regard to the other, the Auto Cycle Union has decided to give notice of the termination of its agreement with the Motor Union, and has arranged to affiliate direct to the Royal Automobile Club. The A.C.U. has drawn up a scheme whereby it assumes complete and absolute control of the sport of motor cycling, except as regards the R.A.C. veto (which is a practically negligible quantity), and becomes in every sense a self-governing body, controlled by a representative council of motor cyclists. These new schemes have been drafted most carefully, and will, we expect, be greeted with approval by affiliated clubs.

Recent Affiliations.

The Sheffield and Hallamshire, Worcester, and the Bradford Motor Cycle Clubs have decided to affiliate to the A.C.U., and the Newcastle and District M.C.C. have decided to re-affiliate, and provided they submit to the terms of the agreement they will be accepted.

A Non-starter in the Quarterly Trial.

The Zenette tricar entered in the A.C.U. Quarterly Trials by Mr. W. G. Bower did not start, as the machine was exhibited at the Dublin Show, and owing to some blunder by the shipping agents, the tricar was lost temporarily, and it did not arrive in London in time for the competition.

Mistaken Identity.

We have received a humorous letter from Messrs. Ivan B. Hart Davies and Basil H. Davies regarding mistaken identity. The letter reads as follows: "We, the undersigned, hereby declare that we are two totally distinct and separate persons. We are both keenly interested in motor cycles and competitions in connection with them. We take this opportunity of laying the facts before the readers of *The Motor Cycle* to save ourselves the annoyance of continually receiving letters not intended for us, and of being credited with one another's opinions and performances.—Ivan B. Hart-Davies, Bank Street, Rugby; Basil H. Davies, 2, Royal Terrace, Northampton."

A 6,000 Kilometres Ride.

That well-known French motor cyclist, Grapperon, left Paris on Thursday morning last in a dense fog for a 6,000 kilometres (3,726 miles) ride, which will embrace the tour of France. The first day he rode to Rouen, and on Sunday from Rouen to Evreux. His mount is an Alcyon.

Affiliations.

We have received a circular from the Motor Union enclosing two notes which the Motor Union says it is informed are to be suppressed and not published in the current issue of the *R.A.C. Journal and M.U. Gazette*. We have not sufficient space to publish the notes *in extenso*, but the most interesting item to our readers is that the Motor Cycle Union of Ireland is affiliated to the Motor Union.

FUTURE EVENTS.

—:o:—

Jan. 24 to Feb. 1—Scottish Motor Show, Waverley Market, Edinburgh.

„ 30—Newcastle and District M.C.C. Annual Dinner.

Feb. 13—Cardiff Motor Club Annual Dinner.

„ 15—A.C.U. Fifth Annual Dinner, Hotel Cecil, Strand, 6-30 p.m.

„ 15—A.C.U. Council Meeting.

„ 18—Motor Cycling Club Bohemian Concert.

„ 21-29—Manchester Motor Car Show, Belle Vue, Manchester.

Mar. 21-28—Cordingley's Motor Show, Agricultural Hall.

April 23-28—Auto Cycle Club de France Reliability Trials for Motor Cycles and Voiturettes. Total distance nearly 1,000 miles.

„ ——A.C.U. Quarterly Trial.

The A.C.U. Quarterly Trial. A. G. Peppercorn (two-speed chain-driven Anglian) on Dashwood.

Scarborough Motor Cyclist Fined.

Jack De Pass, of Scarborough, was fined £5 and 19s. costs on Friday last for alleged excessive speeding on the Seamer Road. A constable said the rider was going at a "tremendously big pace." Another said as soon as Mr. De Pass passed him, the latter dashed off at a furious rate—quite twenty miles an hour, and he made glances at a train going into Scarborough which he was trying to race. Four witnesses were called in defence, but the Bench decided to convict as above. The Chief Constable even applied for the license to be suspended, but the application was not granted.

Some Remarkable Experiments.

On the 18th inst., at the Institution of Mechanical Engineers, Prof. Burstall presented to the members the result of five years' research on the gas engine. *The Autocar*, commenting on the question of compression in relation to thermal efficiency, which was the principal subject dealt with in the results of the Professor's researches, says: "Till a lengthy study of the report is possible, it is difficult to say how far Professor Burstall's work will have a bearing upon automobile engines." This remark applies also to the engines of motor cycles in which our readers are most interested. The research disclosed the following interesting fact, viz., that the highest thermal efficiency of the specially constructed 150 h.p. gas engine used for the experiments was reached at a compression of 180 lbs. to the square inch, and as the compression was increased still further, the efficiency fell off slowly. Think of it, motor cyclists! the compression of air-cooled engines rarely exceeds 90 lbs., and more often averages about 75 lbs. Why the resultant explosion from a compression of 180 lbs. would probably jerk a rider nearly out of the saddle. Another interesting thing disclosed in the research was that pre-ignition occurred at 140 lbs. compression, but when the Lodge coil was fitted in conjunction with a specially cooled sparking plug, this difficulty was overcome. This would tend to show that gas need not explode prematurely when subjected to very great pressure, as the compression was carried as far as 270 lbs.

A Tribute to the Motor Cycle.

Lecturing before the Coventry Engineering Society on Friday evening last on "Experience in the Design of Motor Cars gained from motor racing," Mr. S. F. Edge said that his first experiences of motor racing were on motor tricycles, and he referred in a most enthusiastic manner to the great benefit the experiences gained in motor cycle racing had been to him in later years. Lantern slides of Mr. Edge mounted on a De Dion motor tricycle, on which machine he was particularly successful, were thrown on the screen. The room was crowded, and Mr. Edge had a most enthusiastic reception.

The Auto Cycle Union

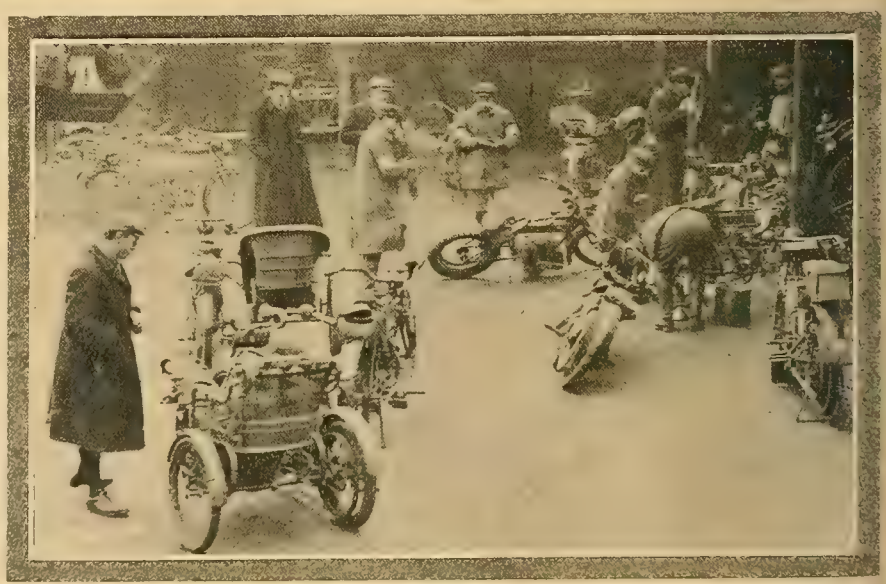
Quarterly Trial.

WHETHER held in spring, summer, autumn, or winter, the A.C.U. Quarterly Trials are always well supported, and last Saturday's competition, though held under the worst possible weather conditions, which up to the day before showed no signs of improvement, was no exception. The entries were thirty-three in number, and of these there were only five non-starters. Among the latter were Wilbur Gunn, whose contact breaker cover was missing, and F. C. Dee, whose tyres were giving him trouble. As regards the weather and roads, the less said the better. From start to finish the road surface was a perfect quagmire of mud, varied only by deep ruts and frequent patches of granite or flint. As a searching test, no better day could have been found, but the unfortunate riders had terrible discomforts to put up with in the shape of the slippery nature of the roads, the cold, and the fog. All day long it was dull, with the temperature only a few degrees above freezing, while to break the monotony the fog hung heavily over the course in several places, notably near Uxbridge, towards the conclusion of the maximum time limit.

Carburetter troubles, due to the cold, soon caused a few retirements. Wells, who was riding a new Vindec, gave up at Dashwood, owing to having had to stop continuously to thaw the carburetter. Barnes, on the new spring frame variable speed Zenette, which made its *début* on Saturday in open competition, was in a similar plight. Marsden (4½ h.p. F.N.) also had the same trouble. One of the official cars which bore the writer was another to suffer from imperfect vaporisation. So the drive through the muddy roads to Dashwood was far from pleasant. The surface of the hill was worse than it ever has been since the Quarterly Trials were inaugurated. The pluck and daring of the riders were good to behold, as, unmindful of the mud, ruts, and stones, they sped up the hill.

To Miss Hind (5 h.p. Rex) falls the honour of making the fastest ascent, time 1m. 14⅗s.; F. W. Applebee (5 h.p. Rex), who has as yet hardly recovered from his accident, second, 1m. 16s.; J. Marshall (3½ h.p. Triumph) third, 1m. 17⅘s.; W. G. McMinnies (3½ h.p. Triumph), 1m. 24⅗s.; G. Lee-Evans (3½ h.p. Rex), 1m. 26s.; F. J. Browning (4 h.p. twin-cylinder N.S.U.), 1m. 41⅘s.; J. Stuart Shaw (5½ h.p. Phänomen), obstructed by bad road surface, 1m. 52⅖s.; M. Geiger (6 h.p. N.S.U.) came up in good form, but dismounted for no apparent reason before reaching the timekeeper, time 2m. 12s.; E. W. Haswell (6 h.p. N.S.U. and sidecar) stopped near top but restarted, time 2m. 15⅖s.; W. Smith (1¼ h.p. Motosacoche) pedalled, time 2m. 19s.; H. Newey (3½ h.p. Lloyd) pedalled hard, time 2m. 27⅗s.; G. L. Fletcher (2 h.p. Moto-Rêve) pedalled slightly near top, time 2m. 32⅘s.; A. D. Draper (3 h.p. Triumph) slowed at top, time 2m. 41⅕s.; J. P. Beck (2½ h.p. Fairy) pedalled, time 3m. 13s.; P. H. Trotman (3½ h.p. Triumph) dismounted at top, time 3m. 14s.; A. G. Peppercorn (2¾ h.p. Anglian), on low speed, time 3m. 31⅘s.; E. W. Brighten (2½ h.p. Ariel) dismounted near top, time 3m. 56⅘s.; H. Fuller (2½ h.p. Diamond) dismounted owing to belt trouble.

After leaving Dashwood, the competitors continued to Banbury *viâ* Islip, and returned by way of Aynho, Bicester, Aylesbury, Berkhampstead, Chesham, and Amersham, but in no district did the roads show any improvement. On leaving Amersham a steep hill is encountered, which is known locally as Gore Hill. So much interest has been taken in this hill on the last two occasions on which this trial has been run that it was decided to time the men up it on Saturday (the length of the climb is about one mile). Almost to the very minute to schedule time the first batch



Scene in the yard of the White Lion, Banbury. Filling up with petrol.

The Auto Cycle Union Quarterly Trial.—

of riders passed over the brow of the hill, where a group of about twenty spectators were gathered. Miss Hind again made fastest time, riding with great skill and daring, time 1m. 37⅘s.; J. Marshall second, 1m. 38⅗s.; F. W. Applebee third, 1m. 39⅕s.; W. G. McMinnies, 1m. 43s.; M. Geiger travelled well to the

Miss Muriel Hind (5 h.p. Rex) leaving Banbury.

steepest portion and then pedalled, time 1m. 43s., E. J. Browning, 1m. 57s.; J. Stuart Shaw, 2m. 14s.; G. Lee Evans, 2m. 30s.; G. L. Fletcher, 2m. 50s.; A. D. Draper dismounted and ran beside his machine, time 2m. 57s.; E. W. Haswell dismounted, then restarted and went up with sidecar empty.

The surface on Gore Hill was even worse than that on Dashwood, and since the former hill cannot be approached with any semblance of a rush, owing to the right-angled corner at the bottom, it is a really severe test. No one of the competitors made an absolute non-stop run, though four came very near it. Marshall (3½ h.p. Triumph) had trouble with a dog. McMinnies (3½ h.p. Triumph) had a traffic stop. Miss Hind (5 h.p. Rex) stopped her engine accidentally twice, and had two side-slips, and Stuart-Shaw (5½ h.p. Phänomen) stopped six times owing to the slippery condition of the roads. These performances will, of course, be considered by the A.C.U. committee, who may elect to award non-stop certificates.

The following is a record of the other competitors who completed the journey: E. W. Haswell (6 h.p. N.S.U. and sidecar), carburetter trouble, stopped on Gore Hill, and ran short of petrol on entering Uxbridge. A. Newey (3½ h.p. Lloyd), side-slip on Gore Hill. E. W. Brighten (2½ h.p. Ariel) stopped on both test hills, and had to shorten belt at Banbury. G. Lee Evans (3½ h.p. Rex), wet on magneto. M. Geiger (6 h.p. N.S.U.) stopped before reaching timekeeper on Dashwood, also traffic stop foot of Gore Hill. W. Smith (1¼ h.p. Motosacoche) tightened belt near Aylesbury, and dismounted through getting into a rut on Gore Hill; the machine was travelling well at the time, and would otherwise have probably finished the ascent satisfactorily. A. D. Draper (3 h.p. Triumph) dismounted on Gore Hill. G. L. Fletcher (2 h.p. Moto Rêve), two stops for belt trouble and one for carburetter. F. W. Applebee (5 h.p. Rex) belt broke near Berkhampstead, wet on magneto, and misdirected at Islip. The same fate was also Miss Hind's, and accounted for her stopping her engine. The following competitors retired: W. H. Wells (5 h.p. Vindec), frozen carburetter. J. V. Robinson (1¼ h.p. Motosacoche), tyre trouble shortly after leaving Uxbridge. O. Mitchell

A group of some of the competitors at Banbury Cross.

The Auto Cycle Union Quarterly Trial.—

(5 h.p. Vindec) lost his way. F. W. Barnes (3½ h.p. (Zenette), frozen carburetter. S. Browne (6 h.p. Lurquin and Coudert) ran short of petrol and took train to Oxford, and then finished journey. P. H. Trotman (3½ h.p. Triumph) retired owing to accident. E. J. Browning (4 h.p. N.S.U.) retired owing to accident near Gerard's Cross. A. G. Peppercorn (2¾ h.p. Anglian), no news at 8 p.m. H. Fuller (2½ h.p. Diamond), belt trouble. W. M. Partridge (6 h.p. N.S.U. and sidecar) arrived outside schedule time.

The roads, as we mentioned previously, through alternate frost and thaw, were indescribably bad, and on no one day in the whole year could they possibly have been worse. Those who got through within schedule time deserve great credit for their performance. The day's ride (125 miles) was a most severe test for both riders and machines.

CLUB NEWS.

Birmingham M.C.C.

The fixtures for February are as follows: 1st, run to Abbots Bromley; 8th, Paper at headquarters, 6.30 p.m., on "Variable Gears," by Mr. R. Vernon C. Brook; 16th, run to Alcester; 22nd, annual dinner; 29th, ladies' day, Stonebridge.

Sheffield and Hallamshire M.C.C

At the club's general meeting on January 16th, Mr. T. W. B. Durant was elected captain and Mr. H. Bisby was elected vice-captain of the club. The address of the new secretary, Mr. T. F. Turner, is 389, South Road, Walkley, Sheffield, and for particulars as to membership riders in the district should apply to Mr. Turner.

North-west London M.C.C.

A whist drive will be held at the Wellington Hall, Finchley Road, N.W., on Saturday, February 8th, at 7.30 p.m. Tickets, 2s. 6d. each, including refreshments, can be obtained from the hon. secretary, H. V. Davidson, jun., 22, Olive Road, Cricklewood. The club confidently appeals to motor cyclists in the London district to make early application for tickets in goodly numbers, and, where possible, to bring a lady, which facilitates the making up of tables.

Dublin and District M.C.C.

The above club, which was recently formed by a number of unattached Dublin motor cyclists, will hold its opening general meeting at the Waverley Hotel, Sackville Street, Dublin, on Thursday evening, January 30th, at eight o'clock. This being the first public meeting of the club important matters are to be discussed which will include the programme for the year, the affiliation matter, and the members' cards and club badge. As the chief aim of the club is to promote sociability and to endeavour to bring local motor cyclists into closer touch with one another, it is earnestly hoped that there will be a representative attendance, and that a large number of Dublin motor cyclists will hand in their names for election as members. All communications relative to the club should be addressed to the secretary, Mr. M. J. Chambers, 15, Edenvale Road, Ranelagh, Co. Dublin.

Cardiff M.C.

At the first annual meeting of the above club, the following officers were elected for 1908: President, Lord Ninian Crichton-Stuart; vice-presidents, Captain D. Hughes Morgan, J.P., J. W. Courtis, Esq., J.P., Messrs. W. J. Hilborne, W. Jones, Herbert Lewis, G. F. Mason, C. F. Peaty, F. C. Shackel, C. J. Thistle, and Rev. F. W. Hassard-Short, M.A.; committee, Messrs. Sidney Hill (chairman), W. H. Bowen, T. Butt-Ekins, J. Bould, H. Haddon, G. A. Horner, J. C. Moore, W. H. Miles, J. Mason, E. Owen, G. H. Smith, A. E. Smithson, and Albert Williams; hon. auditors, Messrs. H. J. Norton and J. Parsons; hon. secretary and treasurer, Mr. H. B. Jotham, Whitchurch, near Cardiff; representatives on general committee of M.U., Messrs. T. Butt-Ekins and C. J. Thistle; representatives on committee of the Auto Cycle Union, Messrs. W. J. Hilborne and J. Bould.

The meeting expressed its appreciation of the services which Mr. H. B. Jotham had rendered to the club as its hon. secretary during the past year, and also to Messrs. H. Haddon and E. Owen, who had undertaken the duties of handicappers at the hill-climbs held during the season. A small sub-committee was appointed to arrange a tangible way of expressing the club's appreciation of these gentlemen. The 1908 programme will include hill-climbs, speed-judging competitions, petrol consumption trials, reliability run, etc. Medals will also be given for the best attendances at the club meets.

York County M.C.C.

A social evening was held at headquarters, Grand Central Hotel, Leeds, on the 23rd inst., between fifty and sixty members and friends being present. The chair was occupied by Mr. E. Simpson. The programme included several really splendid turns, both vocally and instrumentally. It was announced during the evening that one of the most prominent members will entertain the members in February by reading a paper on "Petrol Consumption, and Hints on How to Economise," followed by a discussion in which all members will be invited to partake. This paper should prove extremely interesting to those who anticipate entering the club's first competition in April, which is a petrol consumption trial, the winner of which will become the proud owner of a solid silver cup. Motor cyclists residing in the county of Yorkshire who have not yet attached themselves to any organisation are requested to communicate with the hon. secretary *pro tem.*, H. H. Charge, 8, Methley Drive, Chapel Allerton.

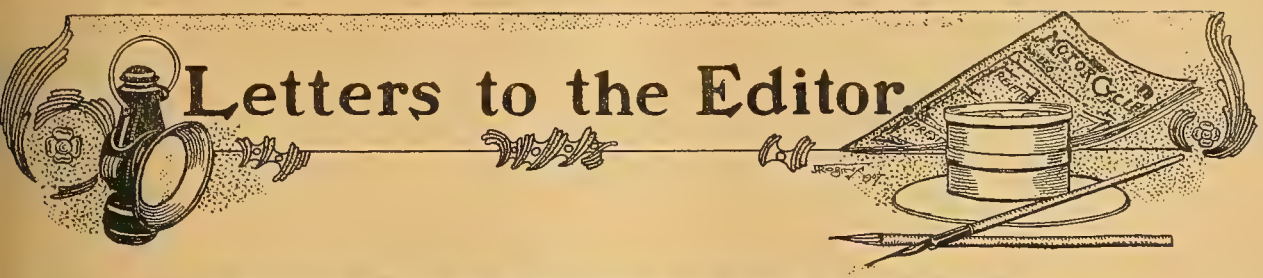
East Lancashire M.C.C.

The annual general meeting of the Lancashire Motor Cycle Club was held on Thursday evening at headquarters, but was not well attended. In a brief review of the work of the past year, Mr. F. H. Wilkinson mentioned the events which had taken place. There had been much interest taken in some of these, notably the hill-climb for the Eccles cup.

The Secretary in presenting the balance-sheet pointed out that the adverse balance shown therein was not so bad as

A W. Browne (6 h.p. L.C. and sidecar) and O. Mitchell (Vindec).

it appeared. It was not really a deficit on the year's working, but was caused by the recent acquisition of badges. After a revision of rules, during which a resolution was proposed by Mr. J. Whitehead, and seconded by Mr. Higson, that an entrance fee of 3s. 6d. should be charged to members elected in 1908, and that a badge should be supplied gratis to all paying the entrance fee, officers were elected for the present year. The president (Mr. Harold Eccles) and hon. sec. and treasurer (Mr. T. Robinson) and his assistant (Mr. D. Strong) were unanimously reappointed.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Useful Tips.

[3078.]—Having seen so much about punctures and many queries *re* same in your paper from time to time, here is a really "useful tip." I have ridden a pair of motor cycle tyres fitted with the new Sphinx bands of the County Chemical Co., and have had all my trouble stop. Time after time I have pulled thorns out of the covers when cleaning, but every one has been broken off and not gone through the band, and for 1,000 miles I have had no trouble. They do not chafe the inner tubes, do not creep, and do not slow the tyre at all, so that this tip may be of real use, as certainly motor cyclists want a tip for prevention of punctures.

"Useful tips" are wanted, when they do not lead us to perform the kind of tricks that Lawson Wood so well depicts in his prehistoric pictures. BP 648.

The Legion of Frontiersmen.

[3079.]—In *The Motor Cycle* of January 15th you very kindly give space to an account of a despatch ride by the Great Yarmouth Command of the Legion of Frontiersmen. You have also been kind enough to give publicity to the fact that the Legion is desirous of recruiting motor cyclists with machines.

May I also be permitted to state through the medium of your columns that the London Command of the Legion, under the command of Lieut.-Col. Driscoll, D.S.O., is now forming a motor cyclists' section, and we shall be very glad if any motor cyclists who are duly qualified for membership of the Legion will offer themselves for enrolment.

Full particulars of conditions of membership will be forwarded at once upon application to me at the headquarters of the London Command, 7, John Street, Adelphi, W.C.

A. ARKELL-HARDWICK (Capt.)
O.C. B Squadron, London Command Legion of Frontiersmen.

A Plea for Outside Flywheels.

[3080.]—With reference to H. R. Ricardo's letter [No. 997] in your issue of 11th December, whilst agreeing with the writer's views, I should like to ask how he proposes securing the outside flywheel to the shaft.

Car builders, true enough, have adopted the outside flywheel, but a car engine crankcase is split horizontally and not vertically as in the case of motor cycle engines. Thus all the main bearings are split, which allows of a flange being forged on the crankshaft, to which the flywheel is secured by four or more fitted bolts.

This method is far superior to the tapered shaft with key and lock nuts.

In cases where an outside flywheel is keyed on, if the flywheel is not an extra good fit, both on the taper and on the key sides, a knock is liable to develop. This knock is caused by the alternate retarding effect of compression and accelerating effect of the explosion.

The higher the compression of the engine, the worse these alternate forces affect the key. Thus if the key and taper are not an excellent fit, the tendency will be either to shear the key or tear the keyway.

Inside flywheels are not affected in this manner, because these alternate forces are communicated from crank pin direct to flywheel.

I must say that I agree with all your correspondent says, and I much prefer the outside flywheel, but I do not like it in conjunction with the taper and key, however well fitted.

HOWARD G. FRAYN.

The A.C.C. Council Meeting.

[3081.]—If you will kindly allow me just a few lines of your valuable space, I would like to reply to a letter referring to me written by Mr. J. Hall, chairman of the Eight, and published in your issue of the 1st inst. In the letter, Mr. Hall throws out two challenges to me, which, however, I do not propose to answer, inasmuch as I think that before Mr. Hall challenges me to substantiate my statements he had better reply to my challenge to him, which was published in the *R.A.C. Journal* of November 4th last, and never answered. The matter I refer to was some wild statement not founded on any fact whatever, and contained in a letter from Mr. Hall in a previous issue. This I challenged at once, and, as I now say, was never answered. Under these circumstances, I must decline to answer any further letters of Mr. Hall's until he substantiates his statements or withdraws the imputation.

The letter from the other disciple of "Reform" in your last issue, Mr. Vaughan, is too absurd for words, and the best way to treat such letters is by silence, in which way I shall treat this one. T. STRAKER, hon. sec. Hull A.C.C.

Sidecars.

[3082.]—Just lately I bought a motor bicycle—4½ h.p. Minerva—and being nervous of riding it without a third wheel of some description, I decided to go in for a sidecar. The agent with whom I deal suggested a Mills and Fulford Castor wheel, which took a few days to procure, during which time I fiddled about with the machine on the stand in order to get some knowledge of same, and longing, yet not daring, to go out for a spin. However, the sidecar eventually came to hand, but imagine my disappointment when no sooner had I started to attach it than the rain came down in torrents, and practically continued unceasingly for two days; this, of course, tended to increase my anxiety to get out and try my new "toy." I simply could not wait until the roads dried, so immediately it stopped raining I decided to make a start much against the advice of all sorts of "experts."

I trust I have made it clear that I am an absolute novice with regard to motor cycles and combinations in connection with same. After considerable difficulty I persuaded a trembling friend to accompany me and started off.

I found absolutely no difficulty whatever with regard to the steering, and although the roads were as greasy as I ever remember seeing them in these parts (Lincoln), and the tyres on the three wheels smooth ones, I had nothing approaching a side-slip, although there were some nasty corners in the town, and eventually went for a twenty-mile spin, arriving home shortly afterwards, none the worse for my first ride.

It is only through reading the controversy in your paper that I had any idea this form of attachment had so many eccentricities. ERIC LONGDEN.

Courtesy at the Show.

[3083.]—I have seen some correspondence recently in your interesting paper *re* courtesy of British and foreign firms. May I give you my experience of the matter, and why so many do deal with foreign firms? I visited the Stanley Show, and made several enquiries *re* machines and sidecars. In five out of ten cases the attendants at the English stands were positively impertinent.

Now, I happen to be an engineer myself, and not only that but a practical motor cyclist. My enquiry in nearly every case was treated with disdain, or with a half sort of sneer by the British firms, whilst the foreign firms made every effort to

understand and interest themselves in my wants. In one case where a prominent sidecar was on show, the attendant actually remarked, "Sir, that is what we make, and if you want any alteration you can take it from me that you do not understand these matters, and are not competent to judge such things." He then turned away, and gave no more attention to myself and three friends. Result, the order was not given.

Example might be taken from the Triumph Cycle Co. They have (and were at the show) always been most attentive. I am, it is true, well-known to them, and my suggestions are always met, but do not blame the British motor cyclist if the foreign manufacturer gets the orders. They are certainly courteous, and in every case where I have had dealings with them, they have been most generous, and honest. "Fair play is a jewel," we are told, but give the firms their due, and do not condemn wholesale as your correspondents seem to do.

I never have bought, and never will buy, any goods not made in England, unless absolutely forced to do so *(e.g.*, when no English counterpart can be found), but the loss of trade is due in too many cases to want of consideration on the part of the English firms. They still want to learn courtesy, still want to learn that what suits one is not what another wants, and then we shall hear less of the British firms being cut out. Look at the example set by L. Ripault and Co. They were courtesy itself to me at the show, and since, over the plugs I wanted, and two English firms put on the most lordly "take or leave it" tone, with the result that I was forced to consider other goods.

The whole Stanley Show to my mind was wanting in courtesy, with one or two exceptions. The English did not meet either myself or my friends in a practical manner, with the result that three of my friends ordered new machines "made abroad," and all because we were treated by the one side as knowing nothing, and by the other as persons interested and likely to know best what suited our requirements.

British work for British people is a good motto, but let the British firms wake up, look after trade, and try and capture, not repel, their prospective customers. Then they can complain if work goes abroad. BP 648.

The Motor Cycle in Madras.

[3084.]—I am sending you two snapshots taken on one of our Madras roads, which will perhaps interest your readers.

The pictures are typical of the surroundings of not only Madras, but the plains of all parts of India; though the surface of the roads generally is by no means so good as that depicted in the left-hand view. In spite of the intense heat, which sometimes reaches 120° in the shade, and exceeds 100° in the shade daily for three or four months during the year, the foliage is fresh and green throughout the year.

Touring in India is practically impossible on account of bad roads, immense distance between towns at which food can be obtained, besides which the heat is too excessive for travelling between the hours of 8 a.m. and 4 p.m.

I find, however, that a fast spin in the evening, after a hot day, is most refreshing.

My Matchless tricar, fitted with a 3½ h.p. M.M.C. engine, is capable of taking two lady passengers, besides myself, over the level roads of Madras at a speed of thirty miles per hour.

W. G. TASSELL.

Variable Gears for Motor Bicycles.

[3085.]—I welcome the letters from Messrs. Brearley and Cameron commenting on the paper on variable gears read by me before the Auto Cycle Union. After all, it is not everyone who can come up to London to take part in a discussion, and as the subject appears to be a matter of general interest to motor cyclists at present, it cannot but help the movement if you can see your way to devote some space to the further ventilation of ideas.

Mr. Brearley's letter reads very hopefully indeed, for if his statement be true, we have here the very gear that we are all waiting to see. So far, however, he has only designed the device, and in this he is merely following many who have gone before him, and it would have been more comforting had we had the statement that such an automatically expanding pulley had been made, run on the road, and the results recorded. It is the large ratios in the gearing from 5 to 1 to 12 to 1, however, that make me doubt whether Mr. Brearley has even seriously considered the matter, for with nothing but a pulley and a driving rim it will be found that it is impossible to obtain a reduction anywhere near approaching 12 to 1. The pulley would have to be so small that no belt would drive on it. I, for one, shall be interested to know how the device works, and what the inventor thinks of it after the first trial on the road, or up a hill of, say, 1 in 8. I would ask Mr. Donald Cameron to again read over the paper, when I think that he will find that what he states in his letter has been practically covered in the paper.

In suggesting an ideal variable gear, I did not mention that this should be of the epicyclic variety, neither did I specify that the drive should be by chain, rather to the contrary, and the jockey pulley was held up as unpractical. Further, the infinitely variable gear was held up as the ideal, but granted that this was a long way off yet, I advocated the two-speed gear as a good mark to start from. With regard to the epicyclic gear causing more friction than any other type, I can assure Mr. Cameron that this is not so, provided it is well made, and properly lubricated. We have ample proof of this not only with motor car gears, but from experiments that have been made with gearing in general. The friction clutch (or clutches) is not by any means part of the particular type of gear, but it is to enable the change from one set of gearing to another without shock that friction clutches become a necessity, whatever the construction of the gearing may be. The whole subject of gearing resolves itself into the simple fact of causing a shaft to rotate at various speeds, the drive being constant. The only practical known means at present is by different sets of gear wheels; these may be arranged in many known ways, and there is practically no limit to the number of speeds and the ratios that can be ob-

A Matchless Tricar which is doing good work in Madras. (See letter No. 3084 above.)

tained. The problem to solve is to lock or pick out any particular set of gearing to obtain the desired ratio, and unlocking or freeing the gear or gears that are not required. This may be done by friction clutches, dog clutches, or sliding gears or feathers (feathers after all are only a form of dog clutch), and the trick that we are attempting is to do this within the weight and the space at our disposal. Look at a split seconds chronograph—what a fine gear box. Yet the gears are locked and unlocked by dog clutches!

J. VAN HOOYDONK.

Cross Road Dangers.

[3086.]—I note your correspondent "Norbury" is of opinion that a moderately noisy motor cycle is more dangerous than a silent one (literally, I have not come across one yet).

I think the greatly increased number of accidents to pedal cyclists disposes of the theory as to quietness. One frequently hears and also reads of accidents through collisions at cross roads, pedestrians being run into after dark, stepping off the path, and such causes.

The average motor cycle, however, gives warning of approach at cross roads, etc., without need to sound the horn, though it is advisable at most places.

Which is more irritating—the continual clanging of bells affected by so many cyclists (and often unnecessarily) or the purr of a motor cycle engine?

MODERATELY NOISY M.C.

Does an Air-cooled Engine Overheat?

[3087.]—Referring to Mr. Walford's further article on the above subject, I note he objects to the use of cold water for cooling by Mr. Edge in his h.p. tests. I submit that Mr. Edge knows his business best; at any rate, it is significant that he and others have complained of overheating when racing at Brooklands. I suggest to Mr. Walford that he should enlarge his acquaintance with Boyle's law. He would not then talk about "gas not expanding in water-cooled engines." I do not know where he got this idea from; I did not originate it.

The temperature of a water-cooled cylinder cannot get much above 212° Fahr., while that of an air-cooled cylinder may be anything up to the "pink" heat Mr. Walford talks about.

Therefore expansion of the charge cannot cause anything like the trouble in the former as in the latter (*vide* Boyle's law). This answers Mr. Walford's first query. So much for theory!

With regard to lubrication, a thin oil may be all right, but it is bound to get out of the engine and make a filthy mess of things generally, which a thicker oil does not to such a great extent. I maintain that as long as the flywheels are dipping in the oil and throwing it on to the cylinder walls, that is sufficient. I give a charge about every fifteen miles. My engine is always sufficiently lubricated, and it keeps its oil to itself, and does not scatter it about over itself and me.

I am afraid Mr. Walford's explanation of the gas engine problem will not hold water. The cover is separated from the cylinder by an asbestos washer, and the cylinder is well jacketed and the compression is better, if anything, when warm. I shall be glad to show the engine to Mr. Walford at any convenient time; seeing is believing. Mr. Walford says that some cars do not run well unless warm. This is true, but the explanation is that the carburetter does not vaporise freely until warmed up—nothing to do with the heat of the engine.

I think it is well known that engines with two-speed gears do not appear to overheat. I suggest that this is due to the engine speed not being reduced, the power does not fall off to the same extent. This partly also explains the experience of Mr. Walford's friend, who is such a prominent entrant in the "All Out Stakes."

It is the ordinary single-geared machine with fairly high gear that feels it most. When the engine of such a machine assumes the "pink" colour, the atmosphere in its neighbourhood generally acquires a bluish tinge, accompanied by a sulphurous smell!

I think the effect of leaky piston rings is well known. Owing to the loss of power and speed, the rider opens the throttle wider, and as the machine is not travelling at a correspondingly increased speed the extra heat developed is not carried off, the effect getting worse and worse, until finally the machine comes to a standstill. That is my experience, dating from the days of the 1½ h.p. Minerva.

R. B. VERNEY.

[3088.]—Mr. Walford's theory regarding the oil being unable to get at the piston rings and cylinder walls due to pressure on top of the piston is not sound to my mind. I have seen a friend of mine stop on Bury Hill with engine overheated. When the engine has cooled down he starts on the same gradient the machine would not rush up in a heated condition. The cylinder walls and piston rings could not have been freshly lubricated in any way.

Again, how can a machine climb a hill with smoke pouring out of the silencer. With regard to trade riders heating up their machines, I agree that a machine does not give its full power dead cold, but an excessive temperature is just as bad. Unless I am mistaken these machines which were heated up were warm, not excessively hot. When I state I cool mine down I get the engine to a temperature that I can just keep my bare hand upon the cylinder, and I do not think any trade rider would heat to a higher temperature than this. I always heat an engine up myself before starting if possible, as this loosens the oil, without which it is more difficult to start. At the same time, I never heat up more than slightly warm.

With regard to overheating on Bury Hill. What have I done to stop overheating? Nothing! The engine lost power due to overheating and stopped. The engine being in better condition since then can afford to lose the power wasted in overheating. But as I said in my last letter, the good effects caused by cooling down are still apparent, as I have twice the reserve power when cool as when hot. The machine gets just as hot as it did before, and loses the same percentage of power, but now I have more power to lose. I notice in reply to Mr. Verney that Mr. Walford suggests that the cylinder expands, causing it to be drawn out of the parallel, and consequently compression falls off. I think this is extremely likely, but is this not caused by overheating? I look upon this as one bad effect of excessive temperature. Finally, what does Mr. Walford suppose water jackets, radiators, etc., are for? and why does any man drive or ride with these appliances if he does not fear overheating? Does Mr. Walford ride his motor car or cycle without radiators or water jacket? If so, will he kindly state why he has them if overheating does not exist?

INTERESTED.

A Satisfied Purchaser.

[3089.]—Noticing in "Ixion's" notes a paragraph headed "The Non-skid of the Moment," I should like to add the non-skid of the future, viz., the Jack-no-skid.

I have just ridden 200 or so miles on the worst possible roads in the worst possible condition (a greasy thawing surface, and some fifty miles of the yellow stone variety), and can speak from actual test to the absolute effectiveness of this patent. As a stand it is splendid; one is able to wheel the machine about, and it is specially useful when cleaning the machine. I am quite enthusiastic about its merits. Muddy, slimy roads have no terrors whatever; in fact, in my estimation it revolutionises winter motor cycling. You are quite aware there are hundreds of motor cyclists who dread with horror the muddy conditions of the roads at this time of the year, and who has not in the course of a summer tour encountered treacherous patches underneath avenues of trees?

W. H. CHAPMAN.

SUMMARY OF OTHER CORRESPONDENCE.

The Bosch Magneto Co., Ltd., of 23, Store Street, W.C., write: "We have received a very large number of applications for our type DA2 pamphlet as a result of a paragraph in *The Motor Cycle*, but regret to say that owing to some of the addresses not being sufficiently clear we have had one or two returned to us. If any of your readers have not received this pamphlet in response to their application, we should be glad to forward them a copy. We would also ask you to mention that this type DA2 is only suitable for single-cylinder engines up to 4 h.p. We are publishing shortly a book on our DAV magneto, suitable for twin-cylinder engines."

EXPERIENCES WANTED.

"A. J. G." would like readers' experiences of the Whittle belt and its suitability for sidecar work with a single-geared machine.

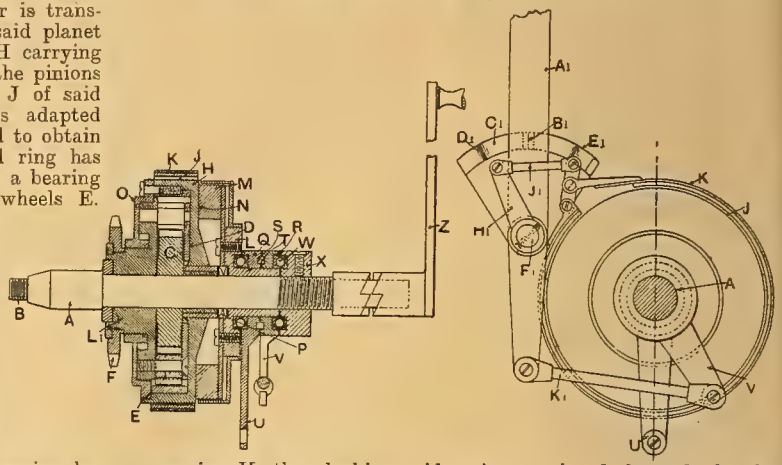
Will H. A. Palmer, late of Kettering, communicate with the Editor?

RECENT PATENTS.

By ERIC W. WALFORD, F.C.I.P.A.

A Two-speed Gear.

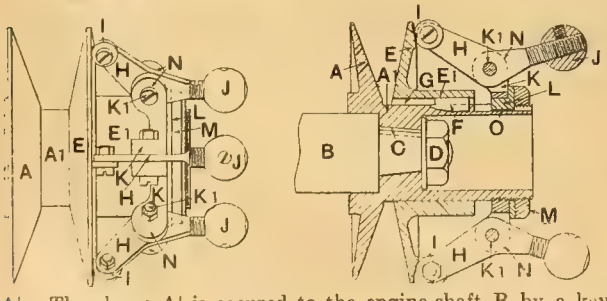
THIS two-speed gear and free engine has been protected by Mr. J. T. Clarke, of 17, Mount Ephraim, Tunbridge Wells. A shaft A is in one solid piece through the gear. Its screwed end B is adapted to be screwed into the flywheel disc, and is arranged to fit the particular engine for which the gear is wanted. Keyed to said shaft is a sun wheel C, and around said wheel a cage D containing a number of planet wheels E gearing with said wheel C. The cage D is arranged to run free on the shaft A, and carries a sprocket wheel F, by means of which the power is transmitted to the machine. On the opposite side of said planet wheel, running freely on said shaft, is a casing H carrying an internally toothed ring adapted to engage with the pinions E carried in said cage D. The outer periphery J of said internally toothed ring has a plain surface, and is adapted to be engaged by a brake band K when it is desired to obtain the low speed. The casing carrying said internal ring has secured to it a second flanged collar O, which takes a bearing upon the collar L_1 of the cage carrying the planet wheels E. On the right side of said casing H a disc L is keyed to the shaft A, and provided on its inner side with friction clutch pads M adapted to be brought into engagement with the side face N of said casing H. The said friction clutch pads M are normally kept out of engagement with the face N of said inner ring by means of the spring P arranged between the disc L and said casing H. In order to bring said clutch pads into engagement with the face N of the casing H, a pair of rings Q and R are used. The faces S and T of said rings Q and R are two inclined planes, so that by locking said ring Q to the casing of the gearing by means of the arm U and by rotating the ring R by means of its arm V, a thrust is given to the disc L which will bring the friction clutch pads M against the side face N of the casing H. In order to take the end thrust, ball bearings W are arranged between said ring R and an outer ring X and the ring Q and the disc L. For the starting of the engine, an ordinary starting handle Z is used. The operating lever A_1 is shown in engagement with the central notch B_1 of the quadrant C_1 in the free engine position. The notch D_1 of said quadrant gives the low speed, while the notch E_1 gives the high speed. The said lever A_1 is pivoted at F_1, and on its pivot a fixed arm H_1 is provided, connected by means of a link J_1 to the brake band K, which is adapted to be brought into engagement with the periphery J of the internally toothed ring of the casing H. At the lower end of said lever A_1 a link K_1 is arranged, pivotally attached to the arm V of said ring R. The operation is as follows: The engine is started by turning the handle Z when the starting lever A_1 is in the central or free engine position. In this position the brake band is off and the friction clutch pads are out of engagement with the side face of the casing H. When the engine is started the high speed is obtained by moving the handle A_1 into the notch E_1, thereby rotating the disc R through the link K_1 and the arm V, and through the ring Q and keyed disc L, bringing the friction clutch pads hard against the side face M of the



casing H, thus locking said casing to the shaft, and thereby said sprocket wheel F, so that the whole mechanism rotates as one piece, and the high speed is obtained. In order to obtain the low speed, the operating handle is moved into the notch D_1 of the quadrant C_1, and through the arm H_1 and link J_1 it brings the brake band K into engagement with the periphery J of said casing H, thereby holding said ring rigidly in one position independently of the crankshaft A, with the result that the sprocket wheel F is driven at the low speed from the sun pinion C through the planet pinions E mounted in the cage D carrying said sprocket wheel. When the engine is in the free position, the casing H is driven round backwards, because the chain wheel and the weight of the machine holds the cage D which carries the planet pinions, and between said free engine position and the low speed position various speeds can be obtained by bringing the brake gradually into engagement with the periphery of the casing.

An Automatic Variable Speed Pulley.

THE novelty of this construction, which has been patented by Mr. E. T. Robinson, of 75, Grosvenor Road, St. Paul's, Bristol, lies in the fact that it allows the gear ratio to adapt itself automatically to the speed of the engine. Thus, when the engine is running fast a high gear is provided, and when the engine begins to slow down, from any cause, the gear ratio decreases in proportion. The fixed flange of the pulley A is formed with a centre sleeve



A'. The sleeve A' is secured to the engine-shaft B by a key C and nut D. E is the movable side or flange of the pulley which is provided with a sleeve E'. The sleeve E' is slidably mounted on the sleeve A' by any suitable means such as a projection on or a feather F in the sleeve A' engaging with a groove G in the sleeve E'. H are a series of pivoted bent levers which are carried by the outer end of the sleeve A'. The inner ends of the pivoted levers H are provided with rollers I, which bear on the outer face of the movable side or flange E of the pulley, while the outer ends of the levers H carry balls or weights J, which are preferably arranged so as to be adjustable according to the engine. The levers H may be adjustably secured to the outer part of the sleeve A' in the following manner. K is a ring formed with pairs of lugs N through which pass pins K' that serve as pivots for the levers H. The ring K is screwed on to the sleeve A', and is locked thereto in its adjusted position by means of a washer L to which is secured a pin O, which passes into a corresponding hole formed partly in the ring K and partly in the sleeve A'. The washer L is secured in its locking position by means of a nut M. The operation is as follows: When the speed of the engine is reduced by the rider, or when a hill is met with, the weighted ends of the levers drop. This decreases the pressure exerted upon the movable side or flange by the opposite ends of the levers, and as a result the width of the groove of the pulley is increased and the belt falls. The slackness of the belt is then taken up by means of a jockey pulley operated either by foot or by cable and lever on the handle-bar. When the speed of the engine is increased, the balls fly outwards, so causing the inner ends of the levers to press against the outer face of the movable flange, and to change its position so as to meet the altered circumstances.

MOTOR BICYCLES FOR SALE.

IN Devon.—3 h.p. Fafnir for sale.—Apply, Halliwell, Pinhoe Road, Exeter.

2 h.p. Gear-drive Singer, perfect order; £10.—Apply to Drake, Haddenham, Ely.

3 h.p. Motor Cycle, in excellent working order; £16. — 67, Wellington Street, Woolwich.

MINERVA, 2 h.p., going order; trial allowed; £5 10s.—Daycock, Queen's Road Bridge, Dalston.

3½ h.p. Enfield-Minerva, 2½in. Palmer cords, Whittle, whole practically new.—Anglesey, Barrow.

1¾ h.p. Werner, spray, just overhauled; £6 10s., or exchange.—Chapman's Garage, Child's Hill, N.W.

QUADRANT, 3 h.p., 1906, spring forks perfect condition; £13 13s. — 25, Tamworth Park, Mitcham.

TRIUMPH, 1907, 3½ h.p., magneto, splendid condition, many spares; £35.—Motor, 28, Westfield Road, Surbiton.

BARGAIN.—2¾ h.p. Alert motor cycle, good condition, excellent at hills; £12.—Motor, 117, St. Aldates, Oxford.

1906 Lightweight 1¾ h.p. F.N., geared pulley, practically unused; £20. —Chapman's Garage, Child's Hill, N.W.

WERNER, two cylinders, 3½ h.p., in perfect order; £14 14s.—4, Yeoman's Row, Brompton Road, London.

3½ h.p. Kerry, Longuemare, B100, very powerful and fast, in good going order; £14.—Briggs, Winsford, Cheshire.

WERNER, 2¾ h.p., spray, in fine condition; £8 10s.; approval allowed. —Davis, Westfield, Birchfield Road, Aston Manor.

2¾ h.p. Clyde, splendid order, horn tools, lamp (separate generator); £12.—Clark, George Street, Ryde, Isle of Wight.

EDINBURGH. — 2¾ h.p. Kerry, brand new, perfect, and handsome machine; £20. — Morgan, 77, Spottiswoode Street.

MOTOR Cycle, Chater frame, 3 h.p. engine, M.O. valves, complete; £12 12s.—4, Yeoman's Row, Brompton Road, London.

4 h.p. Antoine, Chater-Lea fittings, new 2¼ A Won tyres; £20, or offer; exchanges entertained. — Parkinson, Pier, Llandudno.

LIVERPUDLIANS! — Call at 74, Bold Street, and see latest models of Triumph and Roc motors.—Hitchings are the sole agents.

2¾ h.p. Humber, belt-driven, Longuemare carburetter, Dunlop tyres, in good running order; £8.—Page, 74, East Hill, Dartford, Kent.

2¾ h.p. Motor Cycle, Minerva engine, low frame, fine condition.—Apply, Hulbert-Bramley Motor Co., 96, Upper Richmond Road, Putney.

5 h.p. Twin Rex, £18; 3½ h.p. Perry, £14; 3½ h.p. Clarendon, magneto, £10; 3½ h.p. Minerva tricar, £20; 3 h.p. Ascot, £7.—Heightons, Peterborough.

2½ h.p. Jap, spring forks, handle-bar throttle, Brooks B105, Dunlops; price 12 guineas; seen after seven. — Motor, 168, Maple Road, Penge.

TRIUMPHS, 1907 models, several for sale, nearly new condition, every machine guaranteed; £32 to £35 each; approval.—Parker, Melbourne, Derby.

MINERVA, 2½ h.p., B.S.A. fittings, Palmer tyres, cost £45, new tank, belt, and carburetter, excellent condition; £1. —M.D., Hurdis House, Seaford, Sussex.

QUADRANT Motor Cycle, 2½ h.p., spring forks, Brooks saddle, Clincher tyres, good order; sell bargain, £8 15s.—Brown, jobmaster, 35, Whittall Street, Birmingham.

QUADRANT, 3½ h.p., perfect condition, 1906 machine, but only driven about 1,000 miles, tyres unscratched, entire machine like new, all accessories, stand, etc.; price £25, no offers.—Apply, G.G., 34, Cambridge Place, Paddington, London, W.

Power Supplied for £6

We offer a splendid 6 h.p. TWIN REX, fitted with spring forks, long bars, low built, foot bar brake, etc., that will haul a sidecar up hills 1 in 10 at 20 miles per hour, for £6 and a decent 3½ h.p. machine.

Your high-built mount and about £6 secures a 3½ h.p. REX, fitted with spring forks, long bars, foot brake, etc. Climb anything, and looks smart.

SPECIAL OFFER. £6 and your under-powered, under-sized 2 h.p. joker secures a 3½ h.p. light and low REX, fitted with spring forks, 26in. wheels, foot brake, 20in. frame. Climb owt.

We want £5 19s. 6d. and your push cycle for a 3½ h.p. REX, vertical engine, cost £50. Climb anything.

NEW 1908 MAGNETO QUADRANTS.

Marvellous allowance for your old mount.

CASH, CREDIT, OR EXCHANGE—

6 h.p. SHOP-SOILED TWIN REX, fitted with new Sidecar; cost £60	£29 0
6 h.p. TWIN ANTOINE, brand new, less tyres	18 0
4½ h.p. four-cylinder DURKOPP, spring forks	24 10
5½ h.p. REX DE LUX, black finish	32 10
5 h.p. TWIN REX, shop-soiled, 2¼in. tyres	23 10
3½ h.p. REX (1907), shop-soiled, 2¼in. tyres	19 19
3½ h.p. REX, magneto, adjustable pulley	18 18
3½ h.p. TRIUMPH (1907), Riches' butted tubes	32 10
3½ h.p. MINERVA (1907), shop-soiled ..	23 10
3½ h.p. QUADRANT (1907), spring forks	25 10
3½ h.p. BROWN, magneto, non-skid	22 10
3½ h.p. N.S.U., magneto, smart, stand	22 10
Four-cylinder F.N., magneto, spring forks	22 10
4 h.p. STEVENS, low built, Bat pattern	14 14
3 h.p. RALEIGH, low built, two speeds	12 12
TWIN CLEMENT-GARRARD, two speeds, 26in. wheels	18 18
5 h.p. TWIN KERRY, long bars	19 19
5 h.p. TWIN G.B., magneto, spring forks	25 10
3 h.p. CLARENDON, loop frame, smart	10 10
3½ h.p. CENTAUR, low built, powerful ..	12 12
3½ h.p. STANDARD £10	2½ h.p. DE DION .. £9
2½ h.p. SPARK .. 10	2½ h.p. PROGRESS 9
3 h.p. ARIEL .. 11	2¼ h.p. MINERVA 8
3 h.p. HUMBER 9	3 h.p. HOBART .. 6

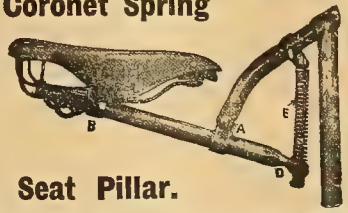
LIGHTWEIGHTS.—The following machines will climb all ordinary hills, extraordinary hills with slight assistance, and will attain 30 miles per hour on level:

1½ h.p. MINERVA, good tyres, V belt....	£4 15
1¾ h.p. QUADRANT, very reliable, handy	5 15
2 h.p. MINERVA, M.O.V., spray, smart..	7 10
2 h.p. LIBERTY, vertical engine, reliable	6 10
2½ h.p. CENTAUR, very smart appearance	7 10
2¾ h.p. ORMONDE, Antoine engine, smart	7 10
2¼ h.p. VINCO, vertical engine, smart....	6 15
2 h.p. CLYDE, vertical engine, magneto ..	8 10

Push Cycles taken in part payment.

MILLS-FULFORD Sidecar, 26in. wheel ..	£3 18
MONTGOMERY, flexible joints	3 18
TRAILER, 25/-. Another, very good	1 12
FORECARRIAGE, coach built, side stays	4 18

Coronet Spring



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PRICE LOW. ADVANTAGES HIGH.

High machines made low. Vibration entirely eliminated. Smooth riding over rough roads.

Descriptive literature free.

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Made from selected parts of hides. Correct angle, non-stretching, long life, perfect drive. Sample belt on approval on receipt of remittance.

⅜in. 9d., ½in. 10½d., ¾in. 1/-, 1in. 1/1.

Special terms to the Trade.

High-class Motor Cycles wanted for cash.

H. BOOTH Coronet Works WADE ST., **HALIFAX**

TELEPHONE 198Y.

MOTOR BICYCLES FOR SALE.

3¼ h.p. Rex, spray, with Phœnix fore-car, very powerful, in good going order, with spares and front wheel to convert.—F. Applebee, Church Hill, Walthamstow.

TRIUMPH, 3 h.p., magneto, Riche's detachable tubes, new tyres, tank, and Watawata belt, equal new; 27 guineas.—Garland, 97, Curtain Road, E.C No dealers.

3½ h.p. White and Poppe, Palmer cords, Brown-Barlow, trembler, two accumulators, Chater-Lea, thorough good order; write first. — Motor, 2, Spencer Park, S.W.

3½ h.p. Phelon-Moore, 1907, two speeds, starting handle, spare studded cover, all accessories, in excellent condition; £33.—Cyril Potts, 38, Dover Street, London, W.

F.N., four-cylinder, £22 10s.; also twin Rex, holder of unbeaten record, Leeds to London and back, proof given, time schedule, registration; £21. — 16, Westgate, Halifax.

3 h.p. Humber, free engine clutch, long handle-bars, new Continental, 2¼in. Model de Course tyres, good hill-climber, fast, perfect condition; £15, bargain.—Dr. McHaffie, Tyne Dock.

TRIUMPH, 3 h.p., magneto, 1906, guaranteed first-class order, driven only one season, tyres good, engine just back makers, overhauled; £27. — Malyon, 16, Tamworth Road, Croydon.

3½ h.p. Excelsior, £15; 2 h.p. Minerva, B.S.A. fittings, £8; both machines have new tyres, spray carburetters, recently overhauled. — Bolsover, solicitor, Stockton-on-Tees.

FOR Sale, N.S.U., 5½ h.p., twin, in perfect condition, used very little, magneto, spring forks, £28; no approval, but seen and tried by appointment.—Soame, Radford House, Stone, Staffs.

TWIN Peugeot, 3½ h.p., new last year, very little used, spring forks, footrests, Lucas lamp, Brooks B100 saddle, and toolbag, very fast machine; price £20.—Apply, John Garrett, Corporation Square, Belfast.

TWIN-CYLINDER 6 h.p. J.A.P. Engine Motor Cycle, Chater-Lea No. 6 frame, Longuemare carburetter, magneto; must be sold.—Hulbert-Bramley Motor Co., 96, Upper Richmond Road, Putney. Telephone, 424, Battersea.

ZENITH Bicar, 3½ h.p., two-speed gear with free engine and handle starting, perfect condition, tyres almost new, also numerous spares; £30, or nearest offer; no exchanges.—Box No. 8,994, *The Motor Cycle* Offices, Coventry.

MOTOSACOCHE, almost new, only ridden about 500 miles, heavy Palmer tyre on back wheel, all accessories, best model; cost, with accessories and extras, £35, will accept £22 10s.—H., 152, Hammersmith Road, London.

1908 Minerva, 3½ h.p., new, all the latest improvements, spring forks, carrier, tools, etc.; send for particulars; also 3½ h.p. Rex, 1908, and 3½ h.p. Brown, all latest 1908 patterns; write; we can save you money.—Athletic Supply, Accrington.

5½ h.p. Twin Antoine, Chater-Lea frame, Druid spring forks, footboards, powerful brakes, Dunlops, two tanks, perfect, with Liberty sidecar, two acetylene lamps, all spares, tools, and accessories; £22. — Letters, Taylor, 10, Hart Street, Bloomsbury.

3½ h.p. Forman, De Dion, special engine, special piston, valve air release, adjustable tappet, two pulleys, silencer, cradle plates, spares, as new, copper tank, levers, pump, Brown-Barlow, Fuller syntonic, complete outfit, fits Chater-Lea; £14.—Below.

WATERPROOF, heavy, rubber, double-breasted, 38in. long, new; 25s.—Mogridge, Topsham, Devon.

EDINBURGH. — Alexander's Motor Exchange, 110, Lothian Road, the largest variety and stock of motor cycles in Scotland; agents for Quadrant, Griffon, Rex, N.S.U., Adler, Roc, Minerva, Vindec, and Bercley motors; repairs, spare parts; exchanges, easy payments.

MOTOR BICYCLES FOR SALE.

SECOND-HAND 3½ h.p. 1906 Rex, very little used; £16.

MINERVA, 1907, 2¾ h.p., tyres hardly worn, machine looks almost new; £17.

REX, 5 h.p., twin-cylinder, 31 guinea model, new; £27.

ROC, 4 h.p., 1907 Military Model, free engine, shop-soiled; £37.

REX, 5 h.p., twin-cylinder, twin back tyres, accumulator ignition, R.O.M. synchronised contact breaker, De Luxe frame, cantilever seat; £24.

REX, 1907, magneto, 5 h.p., twin-cylinder, 40 guinea model, shop-soiled; £31.

REASONABLE Offers entertained, as we must have room for 1908 model.

THE Authorised Manchester and District Agents for Rex, L. F. Harvey and Co., 6, Chapel Street, off Victoria Street, Manchester.

5 h.p. Vindec Special, 1907.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

£7 19s.—2¾ h.p. Kerry, in very good condition.—Motorist, Benfleet Hall, Sutton, Surrey.

2½ h.p. Triumph Motor Cycle, light model; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

N.S.U., twin, free engine, spring frame; no reasonable offer refused.—Below.

2¾ h.p. Cycle, in guaranteed order; sale or exchange.—43, Orsett Road, Grays.

5 h.p. Vindec Special, Truffault, very fast machine; £27 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2 h.p. Clyde Lightweight, magneto, good running order; £8 10s.—Percy Maltby, Ilkeston.

4 h.p. Twin-cylinder Hamilton, very fast; £13 15s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

FOR Sale, 2¾ h.p. Clement-Garrard motor cycle, long handle-bars.—Haskins, Swindon.

£6 10s.—Minerva, 2 h.p., good order.—17, Clarence Terrace, Queen's Road, Dalston, London.

3½ h.p. Minerva; £15; very reliable machine.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2½ h.p. Jap, splendid condition, with spares; £10 10s.—H. Alan, 307, Clapham Road, S.W.

3¼ h.p. Rex, 1905, good condition, all accessories.—50, Carpenters Road, Lozells, Birmingham.

3½ h.p. No. 1 Ariel Motor Cycle, in new condition; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

F.N., 2¾ h.p., 2¼in. tyres, B100 saddle, powerful machine; £12; photo.—6, Poulton Road, Southport.

2¾ h.p. Ormonde, perfect condition, late 1906 model; £16, or nearest offer.—Stirling, plumber, Kelty.

GENUINE De Dion-Bouton, Chater-Lea, 2¾ Clinchers; £10.—Eames, 22, Macroom Road, Maida Hill, N.W.

3½ h.p. Fafnir, Longuemare, Clinchers, perfect; bargain, £15.—Jeweller, 28, High Street, Kingsland, N.E.

2¾ h.p. Kerry, F.N. carburetter; £8 10s.—41, Davenant Road, Upper Holloway, N.

MINERVA 2 h.p. Motor Bicycle, M.O.V., in magnificent condition; £12.—Priestley, Turner Street, Ramsgate.

2¾ h.p. M.M.C. Motor Cycle, fitted footboards, perfect condition, very fast; £12.—Motor, 27, Balham Hill.

£7 10s.—2¾ h.p. Antoine, on Chater loop frame, 26 wheels, low and fast going order.—49, Portnall Road, Paddington.

5½ h.p. Rex de Luxe, free engine clutch, twin back wheel, sprung back and front, magneto ignition, condition absolutely as new; price £32 10s.; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

CONFIDENCE.

Confidence is what you want in the **NEXT** motor cycle you buy. You **ALSO** want confidence in the firm you are buying from. **MY** reputation is second to none. **MY** stock of motors is the finest in the world.

12 6 h.p. **TWIN REXES**, some like new. **12**

9 3½ h.p. **1906 REXES**, Rex spring forks, long and low. **9**

7 3½ h.p. **1905 REXES**, 21in frames, 26in. wheels, Longuemare carburetter. **7**

5 3½ h.p. **1907 REXES**, like new. **5**

Any of the above cheap for cash, or your old machine in part payment. Send full particulars and I will quote you.

What do you want to buy, sell, or exchange? WRITE ME. I work on 5 % profits.

6 h.p. **REX DE LUXE**, brand new	£33	0	0
4 h.p. **ANTOINE**, 1907 machine	18	0	0
3 h.p. **TRIUMPH**, grand goer	20	0	0
3½ h.p. **QUADRANT**, '07, done 200	25	0	0
3½ h.p. **N.S.U.**, magneto, 24in. wheels	25	0	0
3½ h.p. 1906 **REX**, spring forks	15	0	0
5½ h.p. **TWIN N.S.U.**, magneto	34	0	0
3½ h.p. 1907 **REX**	18	0	0
3½ h.p. **ROC** pattern, very low	14	0	0
3½ h.p. **BROWN**, 1907 model	21	0	0
3½ h.p. 1907 **REX**, spring forks	18	0	0
5½ h.p. 1907 **TWIN REX**, spring forks	22	0	0
4½ h.p. **TWIN MINERVA**, 1907, brand new	31	0	0
3 h.p. **N.S.U.**, has won Leeds Hill Climb	16	0	0
4 h.p. **KELECOM**, 26×2¼in. tyres	16	0	0
3 h.p. **CLARENDON**, vertical, Longuemare	10	0	0
3 h.p. **KING**, vertical, spray	10	0	0
3 h.p. **BRADBURY**, vertical	11	0	0
2¼ h.p. **ARIEL** lightweight	10	0	0
2½ h.p. **GRIFFON**, vertical	12	0	0
2¾ h.p. **ZEDEL**, vertical	12	0	0
1¾ h.p. **WERNER**, vertical	7	0	0
3½ h.p. **BROWN**, 1906 model	17	0	0
3¼ h.p. 1905 **REX**, 21in. frame	12	0	0
3¼ h.p. 1904 **REX**, 22in. frame	9	0	0
3 h.p. **QUADRANT**, spring forks	12	0	0
2¾ h.p. **WERNER**, vertical and low	10	0	0
3½ h.p. **DUX**, M.O.V., spray	12	0	0
3 h.p. **NOBLE**, vertical, M.O.V.	10	0	0
3 h.p. **REX**, good goer	9	0	0
2¾ h.p. **R. & PRICE**, 26in. wheels	10	0	0
£10 1½ h.p. **CLEMENT-GARRARD**, two speeds, weighs under 60 lbs.	10	0	0
£5 2¼ h.p. **SHAW**, vertical engine	5	0	0
£7 2¾ h.p. **HUMBER**, fine goer	7	0	0
£6 2 h.p. **QUADRANT**, grand machine	6	0	0
£7 3½ h.p. **AUTOMOTOR**, spray, vertical engine	7	0	0
£4 10 2 h.p. **KING**, spray carburetter	4	10	0
1¾ h.p. **MINERVA**, good	5	0	0
Push cycle, etc., accepted in part payment.			
3½ h.p. **TRICAR**, Phœnix, two speeds	19	0	0
3½ h.p. **MINERVA TRICAR**	18	0	0
5 h.p. Twin-cylinder Runabout, wheel steering	12	0	0
Montgomery Sidecar, 24in. wheel	5	10	0
Montgomery Sidecar, 26in. wheel	5	10	0
Montgomery Sidecar, 28in. wheel	5	10	0
Very nice forecar, 26in. wheels	4	10	0
One ditto, 28in. wheels	4	0	0

CARS.

6½ h.p. **HUMBERETTE**, three speeds	£55	0	0
6½ h.p. **ASTER**, two-seater	55	0	0
16 h.p. **M.M.C.**, four cylinders	80	0	0

MISCELLANEOUS.

2 h.p. Singer Engine and Magneto	3	0	0
2 h.p. Clement-Garrard type engine and carburetter	1	10	0
Pair Twin Rex Spring Forks	1	5	0
B100 Saddle	0	12	6
Dunhill's Speedometers	0	6	6
3 h.p. Quadrant Engine	3	0	0
3½ h.p. 1907 Quadrant Engine, new	4	10	0
4½ h.p. New Orleans Engine	5	0	0
3 h.p. Automotor Engine	2	19	0
Tricar Frame, with wheels and tyres	6	10	0
Tricar Frame, no wheels or tyres, open type for wheel steering	4	10	0

CANTILEVER SPRING SEATS .. 10/- each.

200 LYCETT'S "LIGHTNING" STANDS

FIRM. RIGID. STRONG.
For either 24in., 26in., or 28in. wheels.
Note the price—
4/9 per pair.

HIGH-CLASS MOTOR CYCLES WANTED FOR CASH. MONEY WAITING.

I have bought Seven Tons of Quadrant Engines and Parts. Send your requirements.

E. FARRAR, Albion Works, Square Road, **HALIFAX**

MOTOR BICYCLES FOR SALE.

STOCKPORT.—7-9 h.p. Peugeot, No. 6 Chater-Lea, 2½in. Palmer cords, pan seat, little used; 30 guineas.

STOCKPORT.—Special 4½ h.p. Roc, magneto, unscratched; 31 guineas.

STOCKPORT.—Twin Minerva, new back tyre, £27 10s.; Midget Bicar, 3 h.p., 19 guineas; many other second-hand machines, various powers and prices.

STOCKPORT. — Midget Bicars, patent channel steel girder frame; send for catalogue.—Lund and Davies, Heaton Lane, Stockport.

3½ h.p. N.S.U.; £18 18s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

ROVER Motor Cycle, 3½ h.p., free engine; expert examination; £20.—Burridge, 32, High Street, Watford.

TRIUMPH, latest 1908, just received; immediate delivery for cash.—No. 9,001, *The Motor Cycle* Offices, Coventry.

TRIUMPH, 3½ h.p., 1907, perfect condition, Palmer cord tyres; £33.—Holloway, 97, King Street, Hammersmith.

3½ h.p. Quadrant, with sidecarriage, splendid condition; £25.—Jakeman, 75, Hawthorne Street, Totterdown, Bristol.

1 h.p. Ricard, in good running order; price £6 10s.; light machine.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

HUMBER, 1¾ h.p. engine, Minerva, perfect, good going order; £7.—Goldwasser, 25, Southampton Street, Pentonville.

BAT, 3½ h.p., Peto-Radford accumulators and coil, Watawata, Palmers, spares; £14.—41, Linden Grove, Peckham Rye.

2¾ h.p. Vindec Special, F.N. engine, very reliable, £14 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. Scout, very powerful and fast, faultless condition; £8 15s.—F. Corcoran, Bohemia, Muschamps Road, E. Dulwich.

7 h.p. Peugeot, in No. 6 Chater-Lea frame; £18 10s.; opportunity.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

4 h.p. Twin-cylinder Motor Cycle, Hamilton, fast, studded tyre, etc.; £13 10s., bargain.—13, Brookwood Avenue, Barnes.

3½ h.p. Spring Frame Bat, new machine; £25; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. White and Poppe, late Chater-Lea frame, low position, all accessories; bargain, £16.—5, Heath Street, Hampstead.

TRIUMPH, 3 h.p., magneto, condition like new, all accessories; £23.—5, Heath Street, Hampstead.

TRIUMPH, 3½ h.p., 1907, as new; £34, or take part payment lightweight F.N., or 2¾ h.p.—5, Heath Street, Hampstead.

2¾ h.p. Minerva, new August, 1907, grand condition, with spares; £15.—5, Heath Street, Hampstead.

TRIUMPHS, 1908; order at once for immediate delivery. We allow highest prices for second-hands, Triumphs particularly.—5, Heath Street, Hampstead.

SOLE Agents for Griffon motor cycles, Zedel engine; write for 1908 catalogue.—5, Heath Street, Hampstead.

3 h.p. Triumph, ball bearing engine; £18 18s., great bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

BRIGHTON.—2¾ h.p. Alcyon, spring forks, footboards, perfect condition; £20, or near offer.—Pratt, 17, Hartington Villas, Hove.

2¾ h.p. Phœnix, fitted with Phœnix two-speed gear, Minerva engine, will do 30 miles an hour, and would climb Westerham Hill; this machine is a bargain, lowest price £18 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MOTOR BICYCLES FOR SALE.

GRIFFON, 2¾ h.p., vertical, mechanical valves, spring forks, low built, good condition; £11 11s.—Below.

ANTOINE-KELECOM, 4 h.p., vertical, long bars, low seat, splendid order; £12 12s.—Whittle, 41, Skelbrook Street, Earlsfield.

3½ h.p. Bat, Palmer tyres, footboards, very low and fast; £16, or offer.—128, High Road, Tottenham.

3¼ h.p. Twin Werner, very light, low racy position, as new; trial; £17 10s.—128, High Road, Tottenham.

2¼ h.p. Humber, low position; £8 10s.; fine hill-climber, splendid condition.—128, High Road, Tottenham.

3 h.p. Trent, Chater frame, Longuemare, vertical, very reliable machine; trial.—128, High Road, Tottenham. £12 10s.

GENUINE 2¾ h.p. De Dion, perfect condition, spring forks, Longuemare; bargain, £11 11s.—Clark, 109, The Grove, Stratford, E.

2¾ h.p. Minerva, Chater-Lea's, Clinchers, reliable mount; £11, exchange entertained.—Radium, Gray's Inn Road, W.C.

3½ h.p. Singer, magneto ignition, roller bearings, copper tank, low built, excellent condition; £16, or near offer.—Normington, St. Ann's Chapel.

STAMFORD HILL.—Agents for all leading makes. Sound second-hand machines liberally allowed for. Overhauling and repairs.—128, High Road, Tottenham.

4½ h.p. Twin Minerva, Advance pulley, Whittle belt, spring forks, new tyres, just overhauled, and in splendid condition; £26 10s., or offer; trial.—128, High Road, Tottenham.

3¼ h.p. Ascot, guaranteed perfect order, spring forks, Dunlops, non-skid, condition as new; bargain, £14 15s.—Clark, 109, The Grove, Stratford. Take lower power as part.

7-9 h.p. Peugeot, exceptionally low, special frame, torpedo, B.B., chain drive, 9in. Chater-Lea clutch, footboards, trembler, long bars, B100; offer or exchange.—Radium, Gray's Inn Road, W.C.

3½ h.p. Brown, low, new condition, with cash, in exchange for 3½ h.p. late 1907 magneto Triumph, new condition; will meet purchaser half way, any distance, to prove ability of machine, or deposit *Motor Cycle*. — Donovan, Halliwell Lane, Manchester.

SPLENDID Touring Motor Cycle for Sale, twin-cylinder, 5 h.p. Sarolea, very long frame, 2½ Palmer cord tyres, not scratched, fittings all up-to-date; this machine was built late 1906, used only twice 1907; best cash offer accepted. —Makins, Enfield Lock.

LIGHT and Reliable, 2¾ h.p. Stevens, frame by Barnes, tyres new condition, Dunlops, back only covered fifty miles, do up to forty m.p.h., climb any hill, good touring machine; trial given; £16, or offer.—Garaged at Gerhard and Baikie, Deptford Bridge, New Cross Road, S.E.

MINERVA and Rex. — We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

3½ h.p. Minerva, 1907, spring forks, footrests, carrier, extra petrol tank, patent stand, several spares, nearly new tyres, bold brass head lamp, just overhauled and re-plated and enamelled for owner to take to South Africa, but find cost too much, is reason of selling; £25, or nearest offer accepted.—Rice, Motorist, Surbiton.

CHAIN-DRIVE Centaur, 3½ h.p. free engine, mechanical valves, Longuemare carburetter with hot air jacket, 26in. wheels, Palmer on front, Brooks studded on back, cushioned, girder forks, very low, plating and enamelling in good condition; buying tricar; what offers? Cost 50.—Morgan, 19, Almeric Road, Clapham Common, S.W.

SAVE YOUR TIME, TEMPER, AND MONEY.

We claim for the

SPHINX BAND

that it prevents tyre punctures without in any way slowing or making heavy the tyre. Don't think it is so, just because we say it is so, but go to the nearest cycle or motor dealer, ask him to show you the Band, and to allow you to xperiment with some good stout thorns.

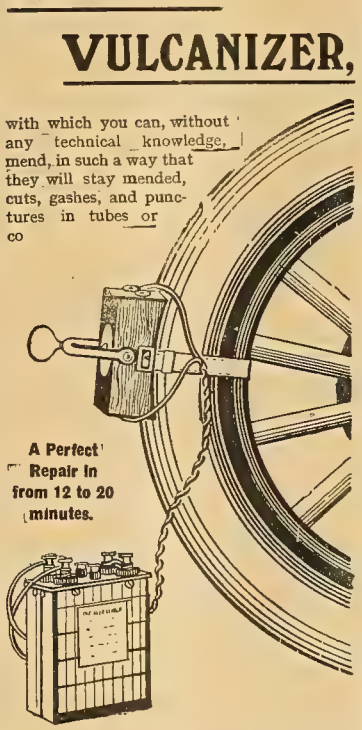
TESTS BRING CONVICTION.

3/6 PER BAND.

If you don't want a Puncture Preventer, you will certainly want

HAY'S ELECTRIC VULCANIZER,

with which you can, without any technical knowledge, mend, in such a way that they will stay mended, cuts, gashes, and punctures in tubes or co



THE County Chemical Co. LIMITED, BIRMINGHAM.

MOTOR BICYCLES FOR SALE.

THE Leeds Motor Exchange have the following bargains for sale and exchange:

LEEDS.—3 h.p. N.S.U., two speeds; £18.

LEEDS.—2¾ h.p. Gobron-Minerva; £12.

LEEDS.—2¾ h.p. Kerry, Palmer tyres; £12.

LEEDS.—2¾ h.p. Humber, good order; bargain, £8 10s.

LEEDS.—3h.p Fafnir, Chater-Lea, spring forks, low position, long handlebars, spare pulley, belt, accumulator, inlet and exhaust valves, tyres almost new; £16 10s.

LEEDS.—3½ h.p. 1907 Triumph, as new, only done about 2,000 miles; a bargain; £35.

LEEDS.—Will buy your motor cycle, or take same in part payment for any of above.

LEEDS.—We are agents for the famous F.N. motor cycles; call and inspect the 1¾ h.p. model; we will take your old mount in part payment for either lightweight or four-cylinder models. — Leeds Motor Exchange, 28, Dock Street, Leeds.

2 h.p. Minerva, M.O.V., low built; any trial; perfect.—190, Mellison Road, Tooting.

3½ h.p. Humber, condition perfect; £11, climb anything.—Boughey, North Road, Ravensthorpe, Yorks.

FOR Sale, motor bicycle, with 2½ h.p. Brown engine, in running order; what offers?—Can be seen and tried at the Warminster Motor Co., Ltd., Warminster.

2½ h.p. F.N., Chater-Lea frame, fitted with free engine clutch, Palmer tyres, everything in splendid condition; £15 10s.; send for photo.—73, Church Street, Camberwell.

TWIN-CYLINDER Trembler Coil, new, 18s. 6d.; Osborne four-speed gear, 30s.; new unused C.A.V. accumulator, Rex size, 10s.; Continental inner tube, 26 by 2¼, 6s. 6d., only used once; wanted, sidecar.—Pettyt, dentist, Halifax.

3½ h.p. Rover Engine, Chater throughout, low frame, No. 6, Longuemare carburetter, Bassee-Michel coil, two accumulators, Dunlop tyres, everything brand new; will accept £22 10s.; write for photo.—73, Church Street, Camberwell.

YORKSHIRE Riders.—Call and see every part of the new Triumph in section, including engine and carburetter, now on view, as shown at the Stanley Show; explains the superiority of the Triumph in a nutshell; also see the new Goodrich non-skid covers, now in stock; quite the finest thing in tyres for 1908.—Eric S. Myers, No Worry Depot, 62, Manningham Lane, Bradford.

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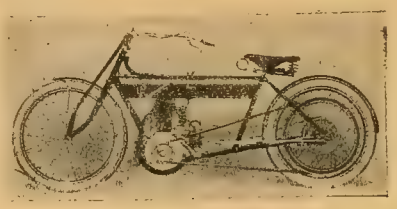

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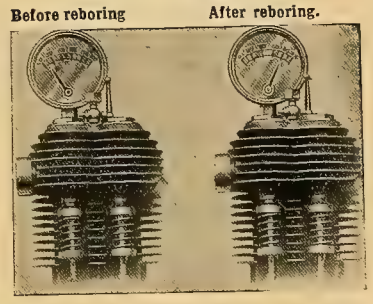

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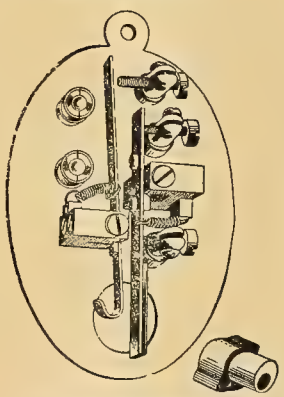

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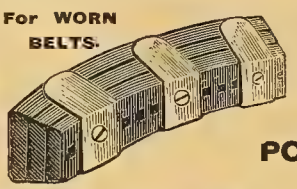

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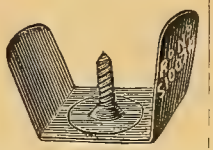

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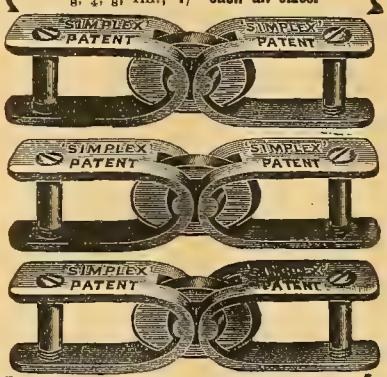

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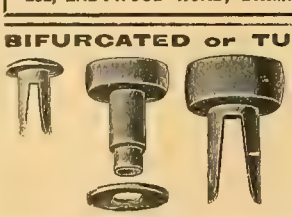

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WANTED, 3½ h.p., single, or 5 h.p. twin Peugeot engine, new; must be cheap for spot cash.—Johnson, 18, Vaughan Road, Birkdale.

WANTED, Model H. and L24 Longuemare carburetters, also 80 mm. second-hand genuine De Dion piston.—6, Bridge Street, Cambridge.

WANTED, 8-10 h.p. V engine, water-cooled, back axle, and gear box to suit, must be light.—F. Robottom, Clapham Terrace, Leamington.

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TWIN Magneto (no rubbish), also sidecar, cheap, or would give 2¾ or 3½ h.p. or push cycle and cash.—No. 9,003, *The Motor Cycle* Offices, Coventry.

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WANTED, Saddle, B105 preferred, beaded edge cover, 26 by 2, also sidecar, or exchange trailer (model de luxe), 26 by 2, perfect condition; sell 55s.—21, Highbury Quadrant, N.

WANTED, small car, two-seater, with hood and screen, Dion or Rover preferred; Riley 4½ h.p. water-cooled tricar in part payment.—Delaney, 101, Sutherland Avenue, London, W.

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CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card.—Address, "The Cycle and Motor Trades' Review" Offices, Coventry.

WANTED, 100 second-hand motor cycles, in part payment for new 1908 models; liberal allowance assured; specifications and amount of allowance will be quoted subject to machine being approved of at sight.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MISCELLANEOUS.

KEEP Cool by fitting the Ideal fan, on ball bearings; price 28s. 6d.—Below.

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SHEDS for Motor Cycles, 45s.; portable.—Stevens, 82a, Leighton Road, Kentish Town, London.

LARGE Separate Generator, for motor cycle, used once; 10s. 6d.—Longlands, Old Road, Clacton-on-Sea.

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N.S.U. Agent.—2¾ h.p. De Dion pattern engine, £2; motor cycle frame, £1; two Rotax car coils, trembler, new, £1 5s each.

ROC Agent.—3 h.p. Star, new Continentals, foot brake, in splendid order, £10; 3½ h.p. spring frame Bat, 2¾ Palmers, no pedals, very fast and powerful, £15.

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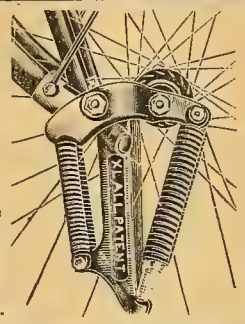

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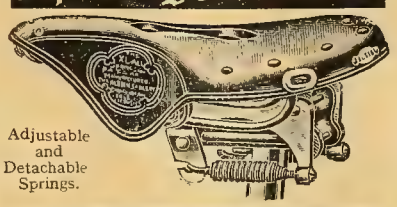

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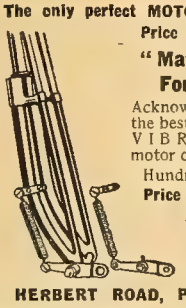

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MISCELLANEOUS.

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PAIR 26 by 2½ Wheels, Micrometer free-wheel, aluminium spray carburetter, throttle, extra air; £1 the lot.—Hacking, Pleasington, Blackburn.

3½ h.p. London Engine, M.O.V., cylinder re-bored, new piston fitted, valves re-ground; £2 15s., or near offer.—No. 9,002, *The Motor Cycle* Offices, Coventry.

CARBIDE, guaranteed, 4, 7, 14 lb. tins, 3½d. per lb.; should be ordered in 21 lb. lots to save carriage.—Stansell and Son, Acetylene Gas Engineers, Taunton.

CONTINENTAL Modele de Course Cover and Tube, 26 by 2, £2; Shamrock-Gloria, 1in., 8ft. 6in., 15s.; both unused.—Haines, 74, St. Leonard's Road, Poplar, E.

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STOP Punctures by fixing inside your covers our leather bands, easily solutioned in; post free 2s. — Barton, leather merchants, Meeting House Lane, Peckham.

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READERS Having Photographic Apparatus for sale should advertise in "Photography" Emporium, ½d. per word, minimum 6d. — Address, "Photography" Offices, Coventry.

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MOTOR and Cycle Agents should read "The Cycle and Motor Trades' Review." Specimen copy post free on receipt of trade card.—"The Cycle and Motor Trades' Review" Offices, Coventry.

R.O.M. Contact Breaker, brand new, lost cam, for Rex twin, 12s. 6d.; luxurious motor trailer, red pegamoid, new tyres, offers; room wanted; any exchange.—Winckworth, Shirley, Southampton.

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MISCELLANEOUS.

BOOTH.—Mudguards, with stays and screws, enamelled, 3in. 2s. 11d., 4in. 3s. 6d. pair.

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BOOTH.—New motor cycle frame, complete with wheels, belt rim fitted, wide mudguards, two cable brakes, valve lifter, long bars, low built, beautifully enamelled, suit twin engine; £6 5s.

BOOTH.—Engines, 6 h.p. twin Rex, £6 17s. 6d.; new 3 h.p. Automoto, £2 17s. 6d.

BOOTH.—Engines: New 6 h.p. twin Antoine, complete, with contact breaker, valve lifter, and pulley; £7 19s. 6d.

BOOTH.—New 5 h.p. water-cooled tricar engine, best make, M.O.V., 1907 model, as received from makers; £7 19s. 6d.

BOOTH.—4 h.p. Antoine engine, M.O.V., nearly new; £5 15s.; new ditto, £6 5s.

BOOTH.—500 Fullers plain Midget coils, as exhibited at Olympia; 10s. 6d.; twin-cylinder, 21s.

BOOTH.—Send your old coil as part payment; liberal allowance; quotation submitted.

BOOTH.—Large stock Fullers accumulators; Rex, 16s.; Minerva, 17s.; Midget, 16s.; C2, 17s.

BOOTH.—5s. 6d. is allowed for your old accumulator in part payment; delivery immediately.

BOOTH Wants sidecars; give in exchange new £8 8s. gent's cycle, fitted roller brakes, free-wheel, best tyres.

BOOTH.—Gas lamps, separate generators, powerful light, 5s. 3d.; nearly new twin Invicta trembler coil, 18s. 6d.

BOOTH.—Nearly new Fit-all two-speed gear, £3 10s.; Osborne four-speed, 57s. 6d.

BOOTH.—Panhard tonneau body, seats five, smart, 37s. 6d.; Vapp carburetter, 10s. 6d.; Rex valves, 2s. 3d.

BOOTH. — New charging dynamo and switchboard, £3; new contact breakers, 3s. 9d.

BOOTH. — Please note our address; Coronet Works, Wade Street, Halifax. Telephone, 198Y.

GENUINE Simms Water-cooled 4 h.p. engine, equal new; £4 10s.—41, Skelbrook Street, Earlsfield.

2¾ h.p. Noble Engine, frame, wheels, tank, handle-bar, saddle.—68, Ancona Road, Plumstead.

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4 h.p. Beeston Engine, water-cooled, £5 10s., nearly new; new circulating pump for same, 15s.; Nilmelior trembler coil, 10s.; P. and R. 20 amp. accumulator, 10s.; Dinin 20 amp. accumulator, 10s.; the lot £7.—Dance, 75, London Road, Portsmouth.

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For Sidecar Work.

Wellhead, Perry Barr,
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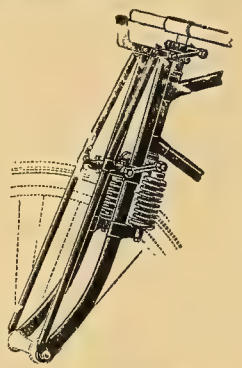
Dear Sir,—I take this opportunity of expressing my absolute satisfaction with your Druid Spring Forks. As you know, I had them fitted solely on account of the inability of the original (spring) forks on my machine to stand the strain of a sidecar on humpy roads. Yours, however, have easily withstood all the hard work I have imposed upon them, and moreover, are considerably more comfortable than my other ones were. If you care to refer any prospective customers to me at any time I shall be pleased to give my experiences with the forks.

Yours faithfully, (Signed), E. C. Frank Evans.



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Why does he look so pleased
And ride so easily?
Ask him—and he will tell you he rides a
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See the other man!
How fierce he looks.
Must be anxiously waiting the top.
Does he ride a "No Worry Triumph"?
Ask him, and be wary, for he may throw something.

No Worry Depot. BRADFORD.

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Tele.: "Obliging." BIRMINGHAM.

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Price £1.

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MISCELLANEOUS.

SUBSTANTIAL Luggage Carriers, 1s. each, post free.—Below.

MONSTER Boxes of assorted pins, bolts, nuts, washers, etc., for cycles and motors, 2s. 6d. each, post free.—Harrison, Blaxton, Doncaster.

TRIUMPH Magneto Covers, 1907, 1908, 6s. each.—John Guest and Sons, Walsall.

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WICKER Body, upholstered dark green, with cushion, new; 22s. 6d.—99, Benthal Road, Stoke Newington.

FAFNIR Carburetter (3-4 h.p.), 10s. 6d., complete; plain coil, 6s., new.—16, Northumberland Avenue, Manor Park.

30 Amp. Minerva accumulator, good order, 6s.; 2½ h.p. Minerva valves, 1s. 6d.; exchange.—Harris, Motorist, Astwood, Redditch.

PAIR 24 by 2½ wheels, tyres, new, £2; 3½ h.p. launch engine, 50s.; pair headlights, £3, cost £7.—Browne, Motorist, Oulton-Broad.

26 by 2 Clincher, Beaded, 8s. 6d.; Gripwell brake, 7s. 6d.; wanted, gas lamp, and 8ft. 6in. ⅞in. or 1in. belt.—321, Woolwich Road, Charlton.

BRAND New 4 h.p. Kelecom Engine, fitted with Osborne four-speed gear, ready for frame; £11.—Hamilton, 116, Almada Street, Hamilton.

POWELL and Hanmer Motor Cycle Lamp for sale, nearly new; first reasonable offer gets it.—W. H. Spencer, 3, Mansel Road, Wimbledon.

SECOND-HAND Single and Four-cylinder engines, suitable stationary or marine; also reversible propeller; sell cheap.—Hamilton, 46, High Street, Paisley.

STUDDED Tyre, 28 by 2in., 10s.; Bassee-Michel trembler, new, 19s. 6d.; 28in. back wheel and tyre, 12s. 6d., control levers, 5s.—H. Harrington, Cargate, Aldershot.

CRACKED Cylinders, water jackets, etc.!—Do not scrap these until you have tried Barker's iron cement; 1s. tin saves pounds. — 9, St. Anselm's Road, Worthing.

80 by 80 M.M.C. Air-cooled Engine, and coils, perfect, spare valves, pulley, etc.; £5 10s.; want 6 h.p. twin for sidecar.—Rathbone, Shurlock Row, Twyford, Berks.

26 by 2¼ Clincher, with Pullman puncture-proof non-skid, lately fitted, 25s.; carburetter, variable sprayer, suit up to 4 h.p., 8s. 6d.—Hetherington, Moffat.

AIR-COOLED Engine, 3 h.p., mechanical valves, £4 10s.; also set Chater lugs, tubes, tanks, £1 10s.; 26 by 2¼ cover, 13s. 6d.; all unused; Nilmelior tricycle coil, 7s. 6d.—A., 8, Herndon Road, Wandsworth.

58 Tooth ⅝ by ½ Sprocket, 9s.; Rex 28 by 2 wheel and belt rim, girder forks, 10s.; new 26 by 2½ Clincher cover, 17s.; two 10 ampere accumulators, Humber, 11s.; wanted, Model E. carburetter.—Below.

WANTED, motor accessories; exchange dress, blouse, or costume lengths.—Barber, 21, Foster Square, Bradford.

CHATER-LEA No. 6 Frame (genuine), fitted with engine lugs, girder forks, mudguards, and long handle-bars, £3 18s. 6d.; powerful twin engine, £9 10s.—C. Struit, 124, Dennett's Road, New Cross, S.E.

NEW Motor Wheels, 26 by 2¼, beaded Continentals, New Departure, Chater, Palmers, tubular, heavily plated, nearest £5.—Lagden, 40, Langbourne Buildings, Mark Street, Finsbury.

TREMBLER Coil, four-cylinder (Guenet), £2 17s. 6d.; 20th Century acetylene lamp, new, 11s.; 2 h.p. Minerva head, M.O.V., three piston, half-time wheel, several valves springs, and other parts; special line: Voltmeters, 4s. each; bench erecting stan 7s. 6d.—Radium, Gray's Inn Road.

THE MOTOR CYCLE

Vol. 6. No. 254. Feb. 5, 1908.

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How to Form a Motor Cycle Club.

By JOHN H. HALL.

MOTOR cycle matters have loomed fairly largely in print during the last few weeks, and ere long they will, I doubt not, loom still larger as motor cycling grows. Already there are something like one hundred motor cycle clubs in existence, and it is expected that by next Easter this number will be nearly doubled. In several towns and county districts there is an expressed desire to form a club, and there are some enthusiastic motor cyclists quite capable of arranging matters, but they do not know the best way of proceeding, and perhaps through a certain amount of bashfulness, and also a large amount of nervousness lest it should prove a failure, they hang back, and manage without a club. I have no specific for nervousness or bashfulness, but will endeavour to help with a rough and ready "map," just showing the way.

The First Step.

There must be someone to take the first move, and he should not be in any way connected with the trade lest it savour of advertisement. When a club is being formed it is well to keep clear of all personal gain, or what would appear gain. Trade members will help when once the club is going, and one or two popular trade members on a committee can do a great deal for a club in the way of getting new members. Let someone take it upon himself to first of all say whether or not there is a sufficient number of motor cyclists in his district to form a club, and if he is satisfied on this point he should interview three or four of the most popular riders and obtain their views. If all are satisfied as to the advisability of forming a club, the next movement is to draft a letter calling a general meeting to discuss the matter, and a copy of this letter should be sent to every motor cyclist in the district. The letter should set out the need for a motor cycle club in the locality, the number of important matters to which such a club could give attention, both social and political, and, if the meeting so think fit, the desirability of forming a club and electing officers.

In order to ensure a sufficient number being present at the meeting, those who are striving to get a club together should not rely upon the letter alone, but should interview as many riders as possible and get them to promise to attend. Don't be discouraged at the smallness of the first few meetings; if half a dozen turn up it will suffice to commence with. If the total membership of the club does not exceed about a dozen, they are all elected on the committee, and thus all are workers, not drones, and will soon add new members to the club; but let every man work with a will. Don't leave it to the hon. secretary; he cannot do it all, neither can any other single member. Every one of the committee should take a hand in the work.

Election of Officers.

After the formation of a committee the next item is the election of an hon. sec. As all the correspondence falls to him, he should be a man of much patience, and to be successful he should be popular—a good

How to Form a Motor Cycle Club.—

secretary is nearly everything to a club. He will require a certain amount of time to attend to his duties, for he should attend all meetings of committee, also general meetings, and keep a minute book for all transactions at such meetings, attendances of members, etc. The hon. treasurer's duties are to take charge of the funds, and render to the members a statement of receipts and expenditure for the year.

In electing a chairman do not go in for big names or mere figure heads. It may be a fine thing in the minds of some to have a real live earl or duke at the head of their club, but little will result in the long run. The chairman should be a very enthusiastic motor cyclist. He must be a thorough sportsman, broad minded, yet firm, with a real desire to help the club and its members as opportunity offers. He should be a man able to grasp what one means rather than what one says, and thus pour oil upon the troubled waters. Little differences often arise through the merest slip of the tongue.

We now come to the "vice-presidents." Any number may be elected, but there is nothing to gain in having a long list. Four is the general thing in small clubs. Next a captain and vice-captain should be elected; also two auditors, and sometimes a hon. solicitor. Some of the latter could be left over for a time until the club has grown a little, when other officers, such as trials hon. secretary and press secretary, could be chosen. Fix upon a suitable name for the club, and decide the address of the headquarters. If all the above business is got through at one meeting you will have done well.

The Objects and Rules of the Club.

When a club has been formed and the officers elected, it is usual to draw up a set of rules to be distributed in the shape of a small handbook. Below I give the rules taken from the handbook of the Sheffield and Hallamshire M.C.C. Each rule should be proposed and seconded at a committee meeting, and of course carried by a majority; then, later on, a general meeting is called and the new rules submitted and usually passed.

RULE 1.—That this club be named "The ——— Motor Cycle Club."

RULE 2.—That the objects for which this club is being formed are:

To cultivate and encourage the use of motors of every description.

To act as a mutual aid in motor matters one member with another.

To assist in the defence of the interests of members who are owners of motors, so far as it lays in the means of the club.

To arrange club runs, etc., the same to be arranged by the committee.

RULE 3.—That the executive of this club shall consist of a president, vice-presidents, hon. secretary, hon. treasurer, ———, together with a committee of — members, five to form a quorum.

RULE 4.—That the committee have the right to fill up any vacancies that occur during the year.

RULE 5.—That a member of the committee missing two consecutive meetings shall be considered to have resigned, unless he sends a satisfactory explanation.

RULE 6.—That the annual subscription to the club be 7s. 6d. On a new member being proposed his first subscription to be handed in, the same to be returned if not elected.

RULE 7.—That all members joining after the competition season closes, the subscription to carry to the end of the following year.

RULE 8.—That this subscription shall carry membership until December 31st of each year.

RULE 9.—That members intending to resign must do so before December 31st in any year, otherwise they will be liable for the following year's subscription.

RULE 10.—That every member duly elected shall abide by the rules and regulations of the club.

RULE 11.—That anyone wishing to join shall be proposed and seconded by two members. Election (which must be unanimous) to take place by ballot at a meeting of the committee.

RULE 12.—That the minutes of the proceedings of every meeting shall be taken by the secretary, and when confirmed and approved at the following meeting shall be signed by the chairman of such following meeting.

RULE 13.—That all alterations of rules must be made at a general meeting or extraordinary general meeting after due notice has been given to each member.

RULE 14.—That a special general meeting may be called by the secretary on a request, in writing, by not less than six members.

RULE 15.—That in all cases of dispute as to the meaning of rules, etc., members hold themselves bound in honour to accept the committee's decision, subject to an appeal at a general meeting.

RULE 16.—That all committee meetings shall be open to ordinary members, who may speak on any subject under discussion, but may not vote.

RULE 17.—That all matters relating to competitions be left entirely in the hands of the committee.

RULE 18.—Meetings for members of the club will be held every other Thursday, commencing February —.

Other rules may be added to the above, but those given cover practically everything necessary.

We have now to decide as to being supported by the governing body, the Auto Cycle Union. All riders should support this union, as by so doing they are being supported themselves. Always remember that "Union is Strength," and the motor cyclist will require considerable strength in the future if he is to have fair play all round.

Fixing Club Runs, Arranging Competitions, etc.

The fixture card requires careful consideration. As to the runs, it is desirable to select a run of, say, twenty-five miles to a suitable place, where there is good accommodation. I know of nothing more pleasing than club runs.

Competitions are a great source of enjoyment. They need not all be hill-climbs or speed races. There is a lot of fun to be obtained in other ways, such as speed judging, slow races, and consumption tests, but to secure sufficient entries the entrance fee should be fixed as low as possible, according to the value of the prizes to be given or the number likely to enter.

During the winter months there are a number of ways of keeping a club together, such as social events, papers on different subjects, whilst competitions could be arranged for mending punctures, fitting new valves, dismantling engine, etc. When once a club is successfully floated, it is not at all difficult to arrange gatherings to the mutual benefit and amusement of the members.

Comfort in the saddle can only be experienced by the adoption of suitable clothing. This is not always easy to obtain at moderate prices. Mr. R. Palmer, 4, Kingsway, Twickenham, claims to have solved the problem for motor cyclists by the introduction of special motor cyclists' breeches, which are cut on the lines of riding breeches. The prices are extremely moderate for the breeches, and also for the puttee's and suits in which Mr. Palmer specialises.

THE

London to Edinburgh Run of 1907.

By ARTHUR W. BENTLEY.

THERE is a singular fascination about the London to Edinburgh trial that, in my opinion, is shared by no other sporting event. At ten o'clock on Friday night you are in the English capital, and by the same hour on Saturday night, all being well, you are in the Scottish capital, having accomplished a feat that you will never forget, and which you will always look back upon with the greatest satisfaction.

In these days of routine it is always refreshing to accomplish something, no matter what, that other people do not attempt, and I believe that this is one of the great charms of the London-Edinburgh run. I can think of few things that can so effectively drive us out of the narrow groove that so many of us are perforce compelled to travel as an experience of this kind.

Fired by the reports that we had heard of this run, my brother and I decided to become competitors in last year's event, and accordingly sent in our names to the secretary of the Motor Cycling Club some ten weeks before the event.

A few days after doing so I had the misfortune to dislocate my arm in a football match, and this proved rather a handicap, as I was unable to get into the saddle again until a few days before the trial.

On the Tuesday previous to the run, however, we gave our machines their final trial spin, and both my brother's 3 h.p. Quadrant and my 3 h.p. Triumph behaved in the most satisfactory manner, and we were thoroughly satisfied and quietly confident of getting through within schedule time with ordinary luck.

I can never understand why more riders do not take part in this run; the expense is not great, and, provided the rider himself is capable and is astride a reliable machine, there is absolutely no reason why he should not succeed.

The author on his 3 h.p. Triumph.

As a safeguard against side-slip and tyre trouble we had both fitted non-skids to our back wheels, and in an event like this I consider it a wise precaution, although, it is true, the speed of the machine is somewhat diminished.

We carried as spares in case of emergency a butt-ended tube, a belt cut to the proper length, complete with fastener, spare valves, and the other usual complements of a motor cyclist's kit.

The few days preceding the trial were days of rain, wind, and intense cold, and Friday (the day of the start) was no exception, a north-westerly wind that blew on that day surpassing in violence any of its immediate predecessors, and the cold as the day drew to a close made us fully realise that the journey North would be a very chilly one.

Consequently we donned all the warmest clothing we could possibly carry, and after filling our flasks with whiskey and our pockets with sandwiches, and saying good-bye to our fond relatives, we were soon tackling the somewhat steep gradients on our way to the starting place at the "Old Gatehouse" at the top of Highgate Hill. On arrival at our destination we wheeled our machines into the yard, and, divesting ourselves of some clothing, repaired indoors for dinner, and all the more heartily did we partake of the good cheer that was set before us as we realised that before our next meal, which it was highly probable would be a hurried one, some seven hours would have elapsed, and we should be 120 miles upon our way.

After finishing with a hot cup of coffee we reported ourselves to the officials, and, having affixed the numbers to our arms, we strolled outside to see how things were progressing. All was bustle. We were surprised to see that a large crowd had collected, and after a look round we took our place in the long line of competitors (numbering nearly ninety) on one side of the road. Before the start an official sealed each machine.

The crowd increased to considerable proportions, and had it not been for the efforts of a strong force of police, who cleared a lane for us down the centre of the road, I do not know how we could possibly have been despatched by the stated hour or anywhere near it.

The Approach of 10 p.m.

Close on starting time the incessant roar that resounded on all sides as the engines were being warmed preparatory to starting warned us that it was time to be getting ready.

The London to Edinburgh Run of 1907.—

A few minutes before ten o'clock we were moved into line down the centre of the road, and almost before the clock had finished striking a cheer in the distance announced that the first rider was on his way. As each competitor was started we moved slowly up the line, and after seeing my brother off I had only about two minutes to wait before it was my turn. At last I was on the starting line, and in half a minute Mr. Bidlake, watch in hand, gave me the signal to start, and, jumping into the saddle, I released the exhaust lifter, and gradually the cheer from the many well-wishers died away in the distance, and for the first time I fully realised that I was off on a 400 miles ride and my first motor cycling competition.

After covering about six miles we reached Barnet, and, turning to the right at the top of the hill, we left the tramlines behind, and were fairly started on the famous Great North Road, with a clear run into Hatfield—our first checking place.

Just after passing through Potter's Bar my lamp, which had been burning sluggishly, went out altogether, and this entailed a delay of about five minutes. Handing up my ticket as I ran through Hatfield, I caught up with my brother, who had been riding slowly so as to enable me to overtake him. Passing through Welwyn (20¾ miles), we made good time into Stevenage (27¼ miles), and, turning to the right at the end of the town, we were soon humming through Baldock (33 miles), and at about 12.10 we were pulled up outside the Swan Hotel, Biggleswade (40 miles), where we had to dismount in order to sign the checking sheet.

There was a bright fire burning in the inn, and everything looked very cosy and warm. Several of the competitors dropped inside for a hurried meal and for something warm to drink. As the night was bitterly cold we were sorely tempted to follow their example, but, not knowing what was in store for us, we decided to push on without delay. By doing this we were amongst the first batch to leave Biggleswade, and at 12.30 were passing through Tempsford (46 miles) ten minutes ahead of time.

Encouragement from Local Enthusiasts.

Here and there we encountered groups of enthusiasts at the side of the road, and they gave us a cheery good night as we flashed by into the darkness. Now and again we were passed by the twin-cylinder machines, but on the whole we were quite satisfied with our position in the pack, which by this time was probably trailing over many miles of country.

We passed through Buckden (56 miles), and at 2.10 a.m. through Wansford Bridge (78¾ miles), and duly arrived at Stamford at about 2.30. We now began to look anxiously towards the eastern horizon for that first cold grey light which heralds the approach of dawn, and at last we were rewarded, the stars gradually paled and the darkness of the night slowly gave place to a bright but exceedingly cold morning.

With the advent of dawn the cold perceptibly increased, and we were glad to have a pull at our whiskey flasks to shake off the numbed feeling that was slowly creeping over us.

We were soon through sleeping Stamford and on our twenty-one mile run into Grantham, famous for its twenty-one hills, which, however, did not give our machines the slightest trouble, although we were glad of a little pedal exercise here and there to stretch our limbs.

We were overhauled hereabouts by one or two cars, which left us a legacy of dust and discomfort until they were a long distance ahead. I certainly hope this year that this sort of thing may be avoided, as it easily could be by either starting the cars an hour before us or else by keeping them back until we are some twenty or thirty miles on our way.

It is hardly fair to the riders of motor bicycles to be put to this inconvenience and annoyance, although, of course, no blame whatsoever attaches to the drivers of the cars, who are naturally as anxious as we are to make good time between the various controls.

So far we had foolishly omitted to wear our goggles, and our eyes were so sore and tired by the dust that it was with the very greatest difficulty that we were able to read the signboards.

Our First Halt at Newark.

After leaving Grantham (105¼ miles) we had only 14 miles to cover before reaching Newark, and the thought of the breakfast that Captain L'Estrange had so kindly provided for us spurred us on, and at about 4.15 the Beaumond Cross hove in sight, and we turned into the yard of the Clinton Arms, Newark, having covered the 120 miles in six hours.

After a hurried wash we adjourned to the breakfast table, at which several of the competitors were already seated, and never before had I enjoyed a meal so much as I did this one, the eggs and bacon and the hot coffee going down with a most delicious flavour.

After partaking of a first-class breakfast we repaired to the yard for the purpose of replenishing the tanks for the next lap—a task we found by no means an easy one, as the staff to whom this work was entrusted were naturally unable to satisfy the simultaneous demands for petrol that were showered upon them. While waiting for our turn to be attended to we had time to look round, and noticed that already there was a thinning in our ranks. From reports it appeared that the chief cause of failure was due to tyre trouble, but I consider this was rather due to the rider trusting to old and worn covers for a long ride than to any fault in the make of the tyres themselves. Still, we all meet with bad luck occasionally.

At the expiration of our time limit the Rev. B. H. Davies gave us the word to start on our seventy-mile run into Wetherby. Leaving the castle ruins on our left and crossing the river Trent, we sped along a perfectly straight road for Tuxford and Retford; but I had not gone far when I was delayed for some minutes by my stand shaking loose, and in consequence we ran through Tuxford (134 miles) some six minutes behind time.

There was a strong headwind blowing, and it is astonishing how much this affects the speed of a 3 h.p. machine.

Over the next twenty-four miles to Doncaster we had a splendid run, and from a motorist's point of view I should think this is one of the fastest stretches one could find in this little island of ours at any rate—not counting the ten mile speed limit through Retford town, of course!

(To be continued.)

The Champion of the Motor Cyclist World.

JAN OLIESLAGERS.

ALTHOUGH the race for the championship of the world has ceased to exist, few will deny that Jan Olieslagers, the Belgian rider, called in Paris "Le Démon Anversois," can lay claim to the title of the motor cycle champion of the world. His performances during 1907 have been extraordinary, and I am quite unable to describe the impression which this rider creates on the French public when giving his fantastic exhibitions on the Buffalo Vélodrome in the flickering light of the arc lamps. "Unbeatable" is the word that justly expresses the opinion of the French public of this intrepid man, who has proved himself so superior to his opponents that, on his last appearance in 1907, the director had to make the race a handicap to infuse some interest into it, and Olieslagers conceded two laps in a three-mile race to each of the other riders. (Buffalo track is five and a half laps to the mile.)

Finding him at work on a pacing motor cycle at the winter track, the Vélodrome d'Hiver, recently, I suggested to him that readers of *The Motor Cycle* would be intensely interested to read his impressions, and he immediately acquiesced, for it is well known that Olieslagers's heart is wrapped up in the interest of the sport at which he earns his livelihood.

A Few Experiences.

"Well," said we, "are you satisfied with your successes in 1907?"

"Yes; I must admit that I am more than satisfied with my performances. The only thing I regret is that motor cycle racing did not commence earlier last season, for owing to the terrible accident at Buffalo the directors were afraid to recommence."

"But were you not of opinion that motor racing after the accident would be eliminated from all future programmes?"

"Yes, I admit I was, and I think I can justly claim to have been the means of re-starting it. I met the director of the Buffalo at Brussels, and on being informed that he was dubious about running any more motor cycle events on his track, I volunteered to come to Paris and ride for practically nothing, to prove whether the French public was still in favour of them."

"And the result?"

"The result has been that I have since had a series of engagements both in Paris and elsewhere, with which I have been more than satisfied.

"Is it true that you have definitely decided to make Paris your headquarters?"

"Yes, for this reason: I am a pacemaker as well as a racing motor cyclist; consequently there is always plenty of riding for me in Paris—if not in one department, then in the other."

"Which of the two do you prefer?"

"Financially speaking, pacemaking; but my heart is really in motor cycle racing, pure and simple. The sensations of the two are totally different, for the upright position of the one, with your thoughts more of the man following than the machine you are driving, does not give the thrill I experience in a purely motor cycle race. To me it is life, and my happiest time is when, with the inside position, I am 'holding off' another rider on the outside and preventing him from passing."

"Now will you tell me the qualifications necessary to be the champion motor cyclist of the world?"

"Firstly, you must be a good mechanic and understand your machine better than yourself. You must be able to instinctively grasp difficult situations.

Jan Olieslagers, the champion motor cyclist. His wishes to readers of "The Motor Cycle" will be observed written across the top of the photograph.

The Champion Motor Cyclist of the World.—

Courage is, of course, indispensable—you cannot have too much—but at the same time one must know the danger line, and it is the knowledge of this last point which marks the real champion, and experience alone can teach it."

"As to machine?"

"It must have a fair length of wheelbase, but not too long; the frame must be rigid, the handle-bar well suited to the rider's position, a strong pair of forks, and an engine more powerful than is required for the track when at full speed."

"How many years have you been racing?"

"Well, I am now twenty-four years of age. For eleven years I have been a mechanic, and during seven years of this time I have been a racing motor cyclist."

"Have you ever had any bad accidents?"

"Yes; once in 1904, at Roubaix, when I broke three ribs, two fingers, sprained my foot badly, as well as injured my shoulder. I have, of course, fallen on numerous occasions, but apart from the above case I have not been badly injured. I think I must have been born under a lucky star, although I admit a special knowledge of how to fall. For example, only a month or two ago, when racing against the French rider Cussac and the Swiss champion Bussac, through riding too close to the inside, I got my wheel off the track, leaving the banking. Knowing it was impossible to avoid a fall, I managed to reach the next banking, when I threw myself off the machine and rolled down unhurt, the speed at the time being sixty-five miles an hour on a five-lap track. Again, in 1905, at Antwerp, I had qualified for the final of the championship of the world. When leading, I punctured. Every motor cyclist used to high speeds on highly-banked tracks is aware that, with a burst or large-sized puncture, it is impossible to hold the machine up. Had I immediately fallen from the machine, Pernette, who was following me, would have run over me, and the result of that would have been too serious to think about; switching off would also have increased the danger of an immediate fall. By keeping going and retarding the spark, Pernette had passed me before we reached the other banking; then throwing myself off, I saved the situation. It is through this instinct, combined with a good share of luck, that I have not experienced several severe accidents."

"Now as to your more recent performances?"

"As time rolls on one must improve with it. In 1906, 10⅘s. for a lap on Buffalo was considered marvellous, but last year I improved this time considerably, often doing 10s. to the lap. I have on no occasion been beaten, as you know, and my conquests have been over Pernette, Cissac, Bussac, the Count of Monasterolo, Cussac, Grapperon, André, and Gougoltz."

As I was about to take my leave, Olieslagers remarked that, although he paced the cyclist Walthour at the Crystal Palace in 1904, he had never had the opportunity of competing in a motor race in this country, and that he hoped to be able to do so during 1908, and with this I left him busily engaged finishing some adjustments to his new 18 h.p. pacing machine.

G. A. B.

THE MOTOR CYCLING CLUB A.G.M.

THE annual general meeting of the Motor Cycling Club was held at the Tudor Hotel, Oxford Street, on Monday, the 27th ult. The report for the year is one of which the Club is justly proud, and during its reading an interesting point was raised by Mr. A. G. Reynolds. Mr. Reynolds suggested that some method should be found of equalising the chances of both motor cyclists and car drivers in the London to Edinburgh run. On all previous occasions on which this run has been held the car driver has had a decided advantage over the bicyclist in being able to carry lighted watches, speed indicators, and other appliances for checking the time between each milestone. Mr. S. H. Fry then rose and sugested that the simplest way out of the difficulty would be to give another cup for the motor cyclists, and promised to give £5 towards it. This immediately aroused the enthusiasm of two other members, and Mr. C. J. Seed and Mr. E. Gwynne expressed their willingness to give further contributions of £5 each. A vote of thanks was then accorded to the above three members. After reading through the balance-sheet, the following officials were elected: President, Mr. Charles Jarrott; vice-presidents, Messrs. S. F. Edge, A. Brown, S. J. Sewell, E. Perman, J. Van Hooydonk, V. Abraham, and J. A. Jackson; captain, C. L. Marshall; hon. secretary, A. Candler; treasurer, R. C. Davis; trials honorary secretary, C. L. Marshall; hon. solicitors, Messrs. J. B. and F. Purchase; hon. auditor, Mr. S. Pearce. The 1908 committee will consist of the following members: Messrs. S. H. Fry, R. H. Head, J. Van Hooydonk, V. Abraham, H. G. R. Slingo, E. Gwynne, F. J. Jenkins, W. H. Wells, Dr. C. Gibbon, L. A. Baddeley, C. J. Seed, and S. G. Frost. Following on the elections of the committee, the following motion was proposed by Mr. Arthur Candler: "That in the opinion of this meeting of members of the Motor Cycling Club affiliation to the Auto Cycle Union should be continued through 1908." Mr. Candler stated that this was a matter for the members to decide for themselves, but he would like, however, to point out, now that the question of new legislation would be shortly put forward, it was time something should be done. Should they continue their affiliation to the A.C.U., or should they be directed by a body consisting almost exclusively of car owners? While the questions dealing with exceeding the speed limit and driving to the public danger were under consideration, would it not be selfish for motor cyclists to stand aside and not work in unity for the motor cycling movement? Motor cyclists, in his opinion, ought to remain independent of motor car owners. Mr. Van Hooydonk then explained the situation in 1907, when the Motor Cycling Club joined the Auto Cycle Union to obtain the benefits of the Motor Union. Now the Royal Automobile Club has dissolved partnership with the Motor Union, and the Auto Cycle Union has severed its connection also with that body, none of these benefits would be lost, since the Auto Cycle Union is associated with the Royal Automobile Club, which can give all these advantages equally well. He then went on to explain the meaning of the veto, and took pains to show how it could not possibly be prejudicial to their interests. In his opinion, they ought to join the A.C.U. and then work for reform, and when the time comes for new legislation motor cyclists would be a large body and of sufficient weight to make their views heard; in fact, it would be as strong as any body of motorists in the world. Dr. Moss Blundell said he had been attending meetings of the M.U. on behalf of the Motor Cycling Club for some time, and he had no intention whatever of helping the Motor Union in any way. He had attempted to get on its committees with the object of helping motor cyclists, and do all in his power in every way, but he had been barred in his efforts at every turn. Dr. Moss Blundell was exceedingly strong in condemning the Motor Union. Again, as regards motor cyclists, he pointed out that the Union had done exceedingly little for motor cyclists, and clearly expressed its unwillingness to help them. In reply to Mr. R. C. Davis, who enquired about the cost of affiliation, Mr. Van Hooydonk said that the cost of affiliation would be 2s. In the case of last year 1s. of this sum went to the Motor Union; under the new scheme the whole of the 2s. goes to the Auto Cycle Union and forms a sinking fund for the benefit of motor cyclists. Mr. Fry stated that the only possible objection that he had to the Motor Cycling Club throwing in its lot with the Auto Cycle Union was this question of veto. The matter was then put to the vote and carried unanimously.

OCCASIONAL COMMENTS.

By "IXION."

The R.O.M. Contact Breaker.

A correspondent writes me enthusiastically about the R.O.M. contact breaker. We all know that it is a task requiring accuracy to properly synchronise the firing of a battery-ignited twin-cylinder, and that when it is properly done the adjustment is soon destroyed by wear on either of the points. The writer makes a claim on behalf of the R.O.M. which is new to me, but which makes it doubly attractive, namely, that this device not only ensures accurate synchronisation, but *maintains* it against wear automatically. If this is so, the contact breaker is doubly attractive, and I look forward to my tests of it with great anticipations.

A Gap in the Market.

There is a curious gap in the motor cycle market at the present time in the form of a strong demand for a machine that does not exist in the supply, and the type I refer to is a powerful twin-cylinder, chain driven, with two-speed gear. The tricar is by no means moribund, but it is probably enjoying a smaller demand than at any previous point of its history. The trailer is dangerous for fast work, and adds no insurance against side-slips, and the sidecar has come to the front as the best compromise in the way of a passenger motor cycle when price, convenience, and comfort are considered. Now riders differ in their ideas of what type of machine best suits sidecar work. Some use single geared bicycles, both one and two cylinders; but these riders admit they would like to add a two-speed gear if they could afford it. Some riders use two-speeded single and twin-cylinder machines, with belt transmission, and their verdict is that these are excellent so long as the belt behaves itself, but that the life of the belt is short, and it is very apt to slip on the low gear. Thus there has arisen a very ardent demand for a sound, high powered, chain-driven, two-speeded, twin-cylinder machine of the highest grade, and, as far as I am aware, no such machine is listed by any maker as a standard. The best advice I can give under such circumstances is the building up of a composite specification, which adds at least a month to the period of waiting for the machine and at least £15 to the necessary price. We are therefore all waiting for one of the best known makers to step into this obvious breach, and we are tolerably confident he will discover a ready made market of good dimensions. Nor need he wait to invent a gear. There are several suitable ones, the principle of which is public property.

The Position of Magnetos.

Several correspondents have written to me making a great point of sundry positions on the machine for the magneto, which they severally regard as ideal. There are three positions embodied in popular designs—low down in front of the crank case, behind the cylinder and above the bottom bracket, and in the tank. The low down forward position is perfectly satisfactory if one of the covers now sold be employed and a good splashguard fitted. If the abaft the cylinder position be adopted no cover is needed, and the magneto is then instantaneously accessible; the same is true of the within the tank position, but this entails an appreciable addition of weight, owing to the heavier driving gear. Thus, while all are satisfactory, of the three I distinctly prefer the platform to be abaft the cylinder, which affords the greatest protection, greatest accessibility, and greatest saving of weight. The only precaution necessary with this position is to preserve a distance from the cylinder great enough to prevent the insulation of the armature being affected by heat.

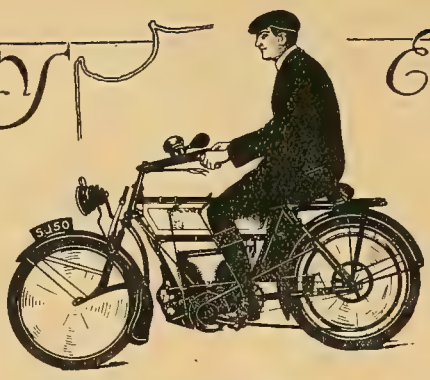
Overheating.

A Midland rider writes me to say he has a 2¾ h.p. De Dion engine fitted to a light two-speeded tricar, which he has been running for three years. He says that, provided it is given sufficent oil, it will run for miles on the low gear, and that, although it has had such heavy work for three years, it still climbs hills as well as ever. The sort of overheating he is able to believe in is solely due to bad lubrication, bad carburation, stifled exhaust, or irregular firing. His experience reminds me how in my younger and more enthusiastic days I actually had the perseverance to drive a 2¾ h.p. engine (also De Dion and water-cooled) nearly 150 miles in a single day, all on the low gear and with two passengers.

Lubrication Details.

On page 72 were printed two interesting letters about splash lubrication, one in favour of the connecting rods passing up from crankcase to cylinder, *viâ* large round orifice, equal in diameter to the bore of the cylinder, the other in favour of retaining the slotted web over the top of the crankcase, and providing a circular oilwell in the circumference of the web, for the bottom edge of the piston to dip into. As a matter of fact, nearly every engine I have owned has been accurately designed in this respect. I have once or twice enlarged the slot in the web, but have always suffered from excess of oil in the cylinder head afterwards, and nowadays when my lubrication seems unsatisfactory I try a new brand of oil, or another consistency of the same brand, in lieu of meddling with the engine. I have also owned a twin-cylinder which combined both systems. The fore cylinder had a slotted web, the rear cylinder an open orifice without any web. On this engine I found the rear cylinder got too much oil if enough was fed to lubricate the front cylinder adequately; and as I could not adapt the rear cylinder, I cut away part of the web from the front cylinder, and supplied less oil to the crankcase, until both were receiving an equal quantity, or, perhaps I should say, until each received the quantity that suited it best. In my opinion, it is ridiculous to imagine that the web can starve the piston of oil. The web makes lubrication easier to estimate, since one can have more in the crank case without over-lubricating. But no engine is under-lubricated because of the web. It must get plenty of oil, in spite of the web, though the oil may be bad oil, or a second cylinder may be getting less oil or more oil. As Mr. J. S. Shaw says, if the web is removed, a lower level of oil in the crank case will certainly suffice; but a higher level of oil will then do more damage, and I am inclined to think unskilled riders are more likely to over-lubricate than to under-lubricate. Hence makers guard against over-lubrication, rather than against its opposite.

Questions & Replies.



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned numbers must be used, the writer to keep a key for reference.

All queries should be addressed to the Editor. "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, must be accompanied with a stamped addressed envelope for reply.

Trembler or Non-trembler Coil.

Which would you recommend for a make and break contact breaker, a trembler or a non-trembler coil? Also which would give the most pace?—E.C.U., Kent.

We recommend the non-trembler coil to be used with a make and break contact for speed, but the trembler coil would enable easier starting.

Suitable Machine for a Beginner.

Kindly give me your opinion as to whether I can obtain a good second-hand motor bicycle which will prove reliable at £15 or £16? Also if a machine with accumulator ignition is suitable for a beginner? I fancy a machine of 3½ h.p. will suit me. Will the running cost exceed ½d. per mile?—S.L., Yorks.

You should be able to obtain a fairly serviceable motor cycle of about 3 h.p. for the price you name, but if you could manage £20 or more, you would be wise to purchase a more up-to-date and reliable machine. The price of second-hand 3½ h.p. machines with magneto ignition ranges to £40. Accumulator ignition is quite suitable for a beginner, and in case of any derangement it is easily put right, but for immunity from trouble a magneto would be preferable. You will have to pay extra for a magneto. ½d. per mile should cover the upkeep of a good 3½ h.p. motor bicycle.

No Power on the Road.

I should be glad if you could tell me why my 3½ h.p. magneto N.S.U. will go at a tremendous speed on the stand, and on the road it will not go at anything like the speed. It makes no difference if it is level or downhill, it will only go at eighteen miles per hour with spark fully advanced and with full petrol and air. Do you think if I enlarged the carburetter jet it would make it any better?—G.W.B., Luton.

You omit to state whether the engine runs regularly or misfires. First it would be advisable to test the compression by standing on the pedal with the exhaust valve lifter released. Also examine both the valve springs, as one of them may be broken and yet remain in position, or spring may be worn out. Note whether the inlet valve tappet rod works freely and gives the correct lift. Next try different adjustments of the air inlet holes at the side of spray chamber, but do not alter the jet only as a last resource. Are you sure that the belt does not slip?

Engine Suddenly Ceases Firing.

I am a novice at motor cycling, and bought a 3 h.p. Clarendon (new) about four months since. It has been fairly satisfactory, but now on pedalling machine on stand the current seems all right and the trembler works each time contact is made, but directly I drop exhaust valve and engine starts I get from ten to thirty explosions, and then engine stops and likewise trembler. If, however, I raise exhaust valve and leave on contact, after about a minute or so there is a slight explosion, and trembler starts again, and the performance can be repeated. The accumulators are all right, also wiring, and there is a good spark if plug is unscrewed and laid on engine as directed in "Motor Cycles and How to Manage Them." All the trouble seems to be when the engine starts, which somehow seems to stop the current. I do not think it is due to the trembler sticking, as I have unscrewed the blade and readjusted screw as advised by you.—J.G.M., Stockton.

Despite what you say, we feel sure the trouble is due to the trembler on the coil sticking. Remove the adjusting screw, also the blade, and face up the two platinum points. Then adjust the coil until it gives off a fairly loud buzz, but do not have the screw any harder on than absolutely necessary. The symptoms also point to an exhausted accumulator. Have you tested the voltage with a voltmeter? As you say the misfiring commences when the engine is started, it is just possible that the coil or batteries are not packed tightly in the tank, and the vibration causes the terminals to short circuit to the metal of the tank. The coil compartment should be rubber-lined.

W. G. McMinnies at Wheatley. This rider wore a thick hood, in which he defied the adverse elements which prevailed on the day of the Quarterly Trial.

Engine Gumming Up.

I have a new lightweight motor bicycle which goes beautifully except for starting. I have to use copious doses of paraffin to free the engine when starting for a ride. If I stop for half an hour on a moderately cold day only, I have to do the same again, and run it on the stand to get warm before starting off. The makers suggested that the piston was half seized. This, I think, must be wrong, as it runs perfectly when warm or when freed with paraffin. I use Wilburine oil. The exertion of starting is so great I am thinking of selling the machine and buying one of another make.—Y 139.

The only thing to do is to use plenty of paraffin when starting. If you liked you could fit a small tank and clip it on to a convenient part of the frame; from it lead a small pipe with a tap so that you can inject paraffin into the compression tap without having need to use an oilcan. You do not mention the quantity of lubricant you give the engine; we are inclined to think you are far too sparing with the oil. Also during the cold weather the oil congeals rapidly, and the piston sticks when cooling down. Every motorist experiences practically the same thing during the winter months. Try injecting the paraffin when you stop, and the engine will then be ready to start when you want it.

Adjustments to enable Better Hill-climbing.

I have a 2¾ h.p. 1905 Bradbury, battery ignition, wipe contact, trembler coil, Longuemare carburetter (Model E), geared 5 to 1, compression fairly good, fat spark. Machine runs well on the level, but I have to keep air lever closed practically all the time. I find machine will not take even a moderately steep hill, although I get up speed beforehand with spark fully advanced and increase gas to full. Machine gradually slows down and I retard spark, and, notwithstanding help from the pedals, it stops altogether. Have taken down carburetter and cleaned it thoroughly. Petrol reaches spraying chamber, but it seems to me the slits of the spray are very small. Should I file these four or five slits larger, or fit a new spray with more or larger slots? Would this improve the power, do you think, and allow more air to be given at extra air lever? I have not found the engine knock at all or overheat, as far as I can tell.—P.F.J., Bath.

If you use a slightly larger jet we think your machine will climb hills much better. Do not enlarge the slots, but procure the next size jet. The machine should take full gas and nearly full air when running at full speed. You do not mention your weight. A gear of 5 to 1 is quite high enough, and if the wheels are 28in. a lower gear would enable you to climb hills much better. Good compression is essential for hill-climbing. Also try a new exhaust valve spring, the one on machine has very likely lost some of its original strength.

Congealed Oil on Piston Rings.

I am a complete novice, and have just purchased a 1907 Triumph motor bicycle to which I have had fitted a two-speed gear—the Fit-all. I find that when I have jacked up the rear wheel, and notched the gear lever for a free engine, I can just work the pedals round, but that with the lever placed for either low or high gear I cannot get the pedals round more than half a revolution. Consequently, it is impossible for me unassisted to get the engine working while machine is on the stand. A friend, stronger than myself, managed it, but only with considerable effort. Is there any method by which I can accomplish the object indicated more easily? Surely it is not natural for the gear to run so stiffly. When descending a hill would it be the right thing to put the lever in free engine position? I notice with accumulator ignition you advise to switch off the spark, but I presume the spark could not be switched off with a chain-driven magneto.—DUBIOUS.

W. M. Partridge stopped on Dashwood Hill in the Quarterly Trial.

It seems certain that you have not adopted our frequent advice to inject a squirt of paraffin through the compression tap before attempting to start the engine on a cold day. It is almost certain that it is not the gear working stiffly at all, but the engine, owing to congealed oil on the cylinder, piston and rings. If the gear were so stiff it would be out of order. The band brake must be binding in neutral position. When the high speed is in, the whole gear should be locked solid, and should revolve as an ordinary pulley, so that there ought to be no increased friction or resistance. You can put the lever into the free engine position if you like when descending a hill, or you may switch off the magneto. When engaging the gear after coasting downhill, always put in the high gear, and gradually. If the magneto is not fitted with a switch, one can easily be put on. The steel screw over the contact breaker is merely connected by a low tension wire to the terminal of the switch. When the switch is in the usual "on" position the magneto is short-circuited and put out of action; when moved over it is ready to start.

Side-slip, Lamps, and Chain Guard.

I have ordered a 3½ h.p. Phelon and Moore motor bicycle, magneto, fitted with 2½in. tyres. I have a dread of side-slip, and should like to do my best to provide against it. I notice that some tyre makers do not recommend steel-studded bands, saying they are detrimental to the life of the tyre, and not more efficient against side-slip than their ribbed tyre. Is there any other practical device which I might employ? It is a matter of some importance, as I expect to ride in all weathers and over all kinds of roads. (2.) What is the best lamp on the market? (3.) Messrs. Phelon and Moore do not fit a chain guard to the driving chain of their motor bicycle. Would it be possible to have one fitted elsewhere? Judging from experience with a push bicycle I should think a chain guard most essential.—C.M.W., Edinburgh.

(1.) If you do not care to fit steel-studded treads you might try one of the rubber studded covers, which, from all accounts, are effective against side-slip. (2.) If you send us a numbered list we will place them in order of merit. (3.) A guard is less wanted on the rear driving chain, but we quite agree with you that one would be advantageous, and it would be quite a simple matter to have one fitted on after the machine has been delivered to you. It would prolong the life of the chain by keeping it clean. Any good motor cycle mechanic should be able to do this.

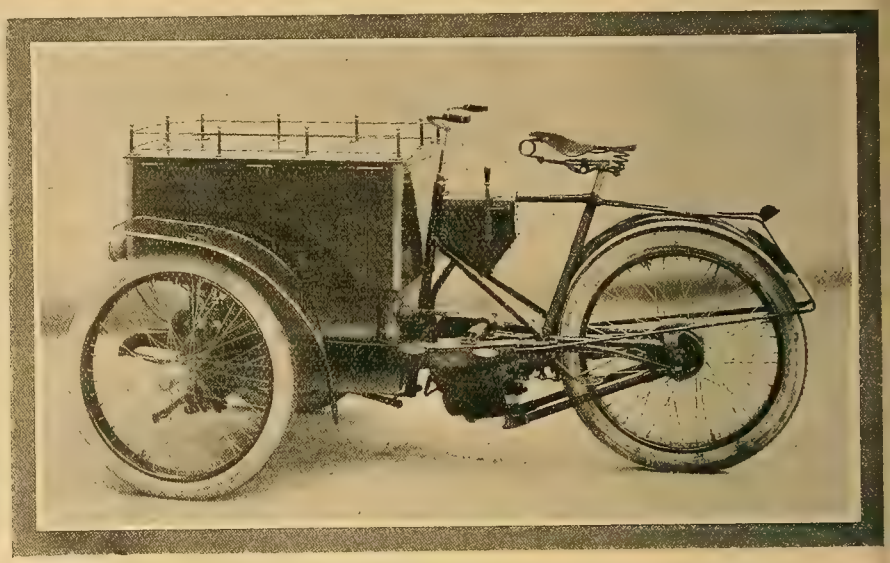
Weak Compression causing Loss of Power.

I have a 3½ h.p. Brown which is very reliable and fast, but the best compression I can get is my weight (11½ stones) for about three or four seconds on the pedal. I have now done about 1,700 miles, and got the machine new. I have ground valves several times, but compression has been like this from the start. Power on hills is not what it should be. Kindly let me know if it is a low compression engine, or if there is something wrong?—Dr. P.M.M.

A low compression engine, provided the fit of the rings, valves, etc., is perfect, should hold a weight practically as long as a high compression engine. The difference between low compression and high compression is simply a variation in the cubical capacity of the combustion chamber, and whether the gas or air is compressed into a smaller or larger space would not materially affect the time for the gases to escape. We should advise you to take the cylinder off and examine the piston rings, and see if these are badly worn. Also examine the seatings of the valve caps where they are screwed into the head, and sparking plug. If all these are in order and valves are perfectly ground in, poor compression can only be caused by a badly fitting cylinder or a minute blow hole which it is difficult to trace until engine becomes hot. Test for leakage of compression at joints by spreading lubricating oil over them, and notice whether tiny bubbles appear when you stand on the pedal against compression.

An Electrically-driven Postal Tricar.

As mentioned in a leading article in *The Motor Cycle* of January 8th, the Berlin postal authorities have been testing the practical qualities of tricars, and among the vehicles on trial are some electrically driven tricars from the works of Siemens and Schuckert. Our Berlin correspondent has sent us an illustration and particulars of this most interesting machine, which we have pleasure in presenting to our readers. The transmission is by means of a gear, power being transmitted to the rear wheel from an electric motor placed beneath the diagonal frame, the current being supplied by a secondary battery fitted under the box in which the mails are carried. The approximate dimensions are as follow: Length of wheelbase, 4ft. 7in.; overall length, 6ft. 11in.; diameter of wheels, 29½in.; wheel track, 37½in.; overall width, 3ft. 9in. The weight of useful load carried works out at 1 cwt. 53 lbs., with a top speed of about eleven miles an hour. One charge suffices for a run of forty miles—enough for postal service, as the vehicles are only used for collecting letters within a limited area or for conveying mail bags from district offices to railway stations or the central office. The mail box measures 2ft. 9in. in length, 1ft. 10in. in breadth, and 19in. in height. Excluding mails and driver, the weight of the vehicle is approximately 6 cwt., the accumulators weighing about 2½ cwt.



A Berlin Post Office Electric Tricar, which is described in the accompanying article.

The underframe is of channel steel, and carries at the back a steel tubular framework of the usual cycle pattern for supporting saddle and handle-bars. Leaf springs are interposed between frame and front axle, and similar springs absorb the shocks on rear wheel. This arrangement of springing insulates the battery, the frame, and the motor. It will also be noticed that the motor is connected with the rear axle by a fork-shaped truss. Both front and rear wheels run on ball bearings.

A double band brake is fitted to the rear hub, actuated by pedals situated each side of the rear wheel, and by utilising the pedals as steps the driver can dismount from either side. The accumulator battery consists of twenty vulcanite cells, each with three positive and four negative plates, and has a capacity of 80 ampère hours on a discharge of 16 ampères and a mean discharging tension of 38.5 volts. Its case is so hung that it can be drawn out in front without there being any necessity to remove the mail box. The motor is a main current motor wound for a tension of 40 volts, which with a consumption of 17½ ampères and 1,675 revolutions per minute gives 3-4 h.p. The power is transmitted to the rear wheel by pairs of spur and bevel wheels, the gear ratio enabling the vehicle to travel on the level at a normal speed of about eleven miles an hour. The lever controlling the motor is at the driver's left hand, and can be used for braking purposes in case of necessity. A resistance is fitted which prevents too much current reaching the motor before the tricar gets under way; it likewise saves the battery from damage through current shocks of too strong a character. To prevent unauthorised persons starting the machine the controlling lever can be removed. There is a plug contact connecting the control with the battery, so that the changing over of batteries is quickly done.

Messrs. W. and R. Jacobs, 39c, King William Street, E.C., are now selling an excellent little electric lamp for motor cycles. This lamp is small and well made, and contains an eight-volt Osram bulb, which gives an excellent light. The only trouble with which the motor cyclist has to contend is the carriage of the necessary accumulators, and this has been overcome by fitting up two moderate-sized four-volt batteries, coupled up in series, in a neat leather case, which can be easily strapped to any convenient portion of the frame. The great advantages of an electric headlight are its cleanliness and the fact that it can be switched on without there being any necessity to dismount. These lamps are also supplied as sidelights for tricars.

The Service Motor Co., 232, Holborn, E.C., seem quite satisfied as regards the motor cycling prospects for 1908. They have booked a large number of orders for Phelon and Moore motor bicycles, and can only take orders for delivery of one more of these machines before Easter. This certainly looks hopeful for the year's business. The Service Company are also agents for both the Montgomery flexible and the Mills and Fulford castor wheel sidecars, and they have trial attachments of both types, so that customers may test personally both forms of sidecars, and thus make their own choice. This is a satisfactory means of settling a problem which the correspondents of *The Motor Cycle* have as yet been unable to solve.

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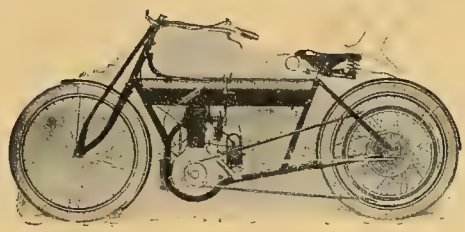

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—"*The Motor Cycle*," 29/1/'08.

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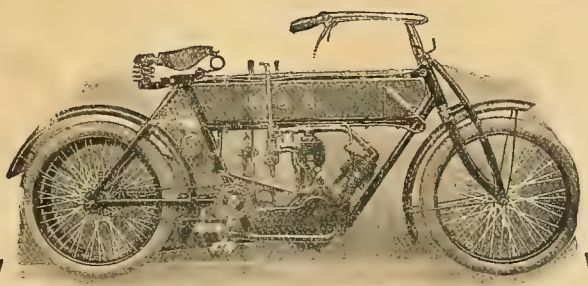

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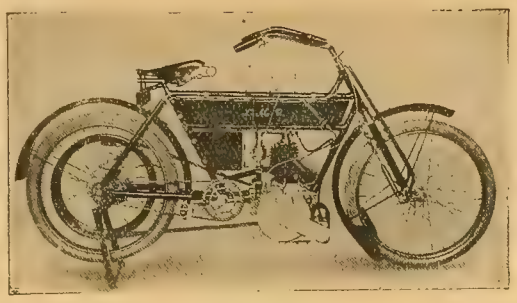

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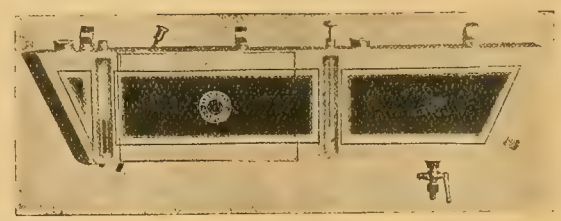

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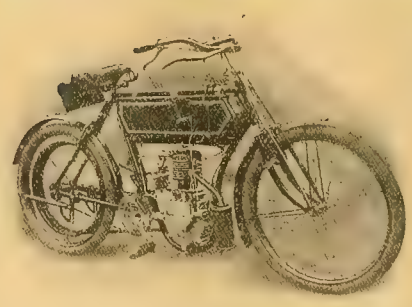

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CURRENT CHAT

Special Feature

THE LONDON TO EDINBURGH RUN OF 1907.

Miss Hind's Success.

Miss Muriel Hind's performance in the recent Quarterly Trials has been the subject of much comment in motor cycling circles. Even hardened riders did not feel at all comfortable on the atrocious roads on the 25th ult., but the intrepid lady rider stuck gamely to her task, and capped all by making fastest time on both test hills. The 5 h.p. Rex she rode was a new machine only delivered the week previously, and is fitted with a Roc free engine clutch.

Low Frames Desirable.

Nothing was more clearly demonstrated to the competitors in the last Quarterly Trial than the desirability of a machine with a very low frame enabling the rider to reach the ground easily when seated in the saddle. The position gives much additional confidence to the rider when riding over treacherous surfaces. Handle-bar control was also found to be one of the greatest boons imaginable.

A Score for Lightweights.

The riders of the lightweight motor bicycles were obviously the least concerned as regards the inches of mud that prevailed on the 25th ult., and were not lagging behind at the lunch interval as on some previous occasions. Had the weather been more favourable and the roads dry, riders of the more powerful machines would have been in their element.

Non-skids.

We have lately used a rubber-studded non-skid tyre with much success. The non-skid is on the rear wheel only, and we find that the steadiness it provides makes the slipping of the front wheel more apparent. For really greasy roads it is necessary to have two non-skid tyres on a powerful machine. We shall have more to say regarding rubber-studded non-skid tyres after a prolonged test.

A Fine Little Mount.

We have at present on trial a 2 h.p. Moto-Rêve lightweight which the English agents have been good enough to place at our disposal. This alone is a proof of the confidence they have in the mount, and after a hundred miles run we can assure our readers the Moto-Rêve has not betrayed it.

Climbing Hills with the Brake on.

In our report of the A.C.U. Quarterly Trial it might appear at first sight that the 3½ h.p. L.M.C. motor bicycle did not acquit itself so creditably as would be expected. Unfortunately for the rider, H. Newey, something was picked up with the mud almost at the commencement of the journey, which forced the shoe of the belt rim brake out of position, so that practically the whole of the 125 miles was covered with the brake partly on. This machine was fitted with Rogers's new detachable inner tubes.

Using Fixed Sidecar without a Passenger.

In the recent Quarterly Trial Mr. A. W. Browne used a rigid sidecar with his 6 h.p. Lurquin-Coudert motor bicycle, but carried no passenger. He did this to prove that a sidecar can be ridden with perfect safety minus a passenger. Although Mr. Browne stopped on five hills it was entirely owing to the high gear and exceedingly heavy roads, and beyond shortening the belt once, he paid no attention to the machine whatever. He was a few minutes late in arriving back at Uxbridge, hence the reason for his performances not being mentioned last week.

Tyres should be Examined.

We are informed that the cause of the rider of the Fairy motor bicycle not completing the course in the Quarterly Trial on the 25th ult., was due to the fact that the driver experienced a burst tyre at Bicester. He was thrown from his machine and slightly injured. Up to the time of the accident he had made a non-stop run.

A.C.U. Annual Dinner.

Members are reminded that the annual dinner of the Auto Cycle Union will take place at the Hotel Cecil on Saturday week, February 15th, at 6.30 p.m. for 7 o'clock. Tickets, 7s. 6d. each, should be applied for without delay. A splendid musical programme is being arranged.

The Dangerous Dog.

A Swanley cyclist was successful in a county court action last week, claiming £2 10s. damages for personal injuries brought about by a savage dog. Whilst riding through Orpington he was chased some distance by the dog, and in trying to ward off its attentions he was brought off the machine, thereby breaking his thumb. Judgment for the amount claimed plus costs were given, and in future no doubt it will be seen that the animal is under proper control.

Affiliation to the Governing Body.

The secretary of the Auto Cycle Union has circularised club secretaries to the effect that the Union has given notice to terminate its agreement with the Motor Union, and will continue the existing relations with the R.A.C. Subject to the consent of the Council, the affiliation fee will be reduced from 2s. 6d. to 2s. per head.

Speed Limit Enquiry at Colsterworth.

An inquiry was heard at Grantham on Tuesday of last week respecting a speed limit application for Colsterworth, the village mid-way between Stamford and Grantham, on the Great North Road. Mr. C. Nelson, the solicitor to the Lincolnshire M.C.C., and Mr. Wilkinson, hon. secretary, with Mr. Mettham, represented that club, who were acting for the A.C.U., Mr. W. Rees Jeffreys, secretary of the Motor Union, representing the M.U., the R.A.C., and motor cycling interests. The road in question is a narrow one of about 900 yards, and a short hill is included. It was agreed between the opposition and the petitioners that if the hill was left out, and the part where the houses are was left, there could be no objection to a compulsory low pace for the remaining 700 yards. This will probably be agreed to. We welcome the evidence that the A.C.U. is at last taking the control of the pastime into its own hands.

Affiliation of Motor Cyclists.

Rumours have reached us that there is a new scheme for motor cyclists in process of formation, but we are at present bound to secrecy as to the names of the organisers and their intentions. We have no doubt, however, that full details of the scheme will before very long be public property, and, this being the case, it is rather regrettable that the Auto Cycle Union does not see its way to publish details of its new scheme, which are, we understand, all settled and only awaiting the ratification of the R.A.C. committee. In any case, a rival organisation coming at this time, when the A.C.U. has set its house in order, would probably cause neither organisation to be successful, and our advice to motor cycling clubs is to accept the A.C.U. scheme, whatever it may be, elect representatives on the council, and then, if there are any grievances remaining, to bring them forward at the council meeting, when we have no doubt they will receive careful consideration.

Open Hill-climbing Competitions.

The Auto Cycle Union has now announced that it is willing to grant motor cycle clubs permits for open hill-climbs under certain circumstances, each case to be considered on its merits, and subject to the approval of the committee.

London to Edinburgh and Back Trial.

In the next M.C.C. London to Edinburgh run and back motor cyclists will most probably compete for a cup, other than the Schulte cup, which latter will in future be for competition among car drivers only. The reason and necessity for this alteration is explained in the report of the Motor Cycling Club's annual general meeting published on page 98.

Handicapping by Time.

Some time since it was suggested in *The Motor Cycle* that, instead of the usual formula used for hill-climbing competitions, the handicap should be reckoned on the following lines. The idea was that the motor cycles should first ascend the hill in classes, all starting from scratch, the fastest machine to be the winner. Then to encourage the slower machines a handicap should be framed upon the times in the scratch race. That is to say, the fastest motor cycle would be on scratch, and all the others would be given as many seconds start from scratch as they were slower in the scratch race. To prevent "roping," if a competitor improved upon his scratch time by more than an experimentally predetermined number of seconds his fastest time would not count as far as the handicap race was concerned. As an example, if in the scratch race A made the fastest time and B was 10 seconds slower, B would receive 10 seconds start from A. But if A only made the same time as in the scratch race, and B improved on his scratch time by 4⅝s., he would have beaten A by 4⅝s. In the current issue of *The Autocar* is an account of some speed trials on the Madras marina on January 1st, in which the above suggestion was adopted for a flat race for motor cars, and it gave perfect satisfaction.

The Motor Union.

On Wednesday last, at the monthly meeting of the Motor Union, Mr. Joynson-Hicks was unanimously elected chairman of the M.U. The Duke of Newcastle, the Duke of Rutland, and Mr. J. F. L. Brunner, M.P., were elected additional vice-presidents.

Two Long Distance Rides.

310 miles in an ordinary day's run on a motor bicycle have even been eclipsed. Two years ago T 495 says he easily beat Mr. Clarke's recent run. Leaving Ottery St. Mary, Devonshire, at 8 p.m. on Tuesday, he reached Sunderland (a distance of about 420 miles) a few minutes before 5 p.m. the next day, after riding all night. He had no engine troubles of any kind. T 495's destination was South Shields, but he did not reach there until 1 a.m. the next day owing to picking up five large pieces of iron in the back tyre. He adds he was rather tired when he got home. We can quite believe it.

325½ Miles in One Day.

Mr. Alfred N. Wood writes that on July 14th last he left Bedford at 3.45 a.m. on a 3½ h.p. magneto Triumph, and reached his home 162 miles away, and twenty miles North-west of Hull at 10.15 a.m. Commencing the return journey at 2.23 p.m., he arrived back at 10.5 p.m. Mr. Wood was obliged to stop twice in the last thirty miles to blow up the front tyre. He used but two gallons six pints of petrol—even less than he used with his previous 3 h.p. Triumph. He assures us he felt no discomfort either during or after this very long day's ride, which speaks well for the comfort of the modern motor bicycle.

FUTURE EVENTS.

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Feb. 7—Auto Cycle Union. "Motor Cycle Tyres and Accessories," by H. Gillard Cove.
" 13—Cardiff Motor Club Annual Dinner.
" 15—A.C.U. Fifth Annual Dinner, Hotel Cecil, Strand, 6-30 p.m.
" 15—A.C.U. Council Meeting.
" 18—Motor Cycling Club Bohemian Concert.
" 21-29—Manchester Motor Car Show, Belle Vue, Manchester.
Mar. 21-28—Cordingley's Motor Show, Agricultural Hall.
April 18-20—Brooklands Motor Races (Easter Meeting).
" 23-28—Auto Cycle Club de France Reliability Trials for Motor Cycles and Voiturettes. Total distance nearly 1,000 miles.
" ——A.C.U. Quarterly Trial.
May 9—Brooklands Motor Races.
" ——A.C.U. Annual Hill Climb at Haslemere.

Tricar for Fire Brigade.

As recently mentioned in these columns, the Beckenham Urban Council has decided to purchase a tricar for "first aid" purposes at fires. At its last meeting an amended design of machine submitted by the Chairman of the Fire Brigade Committee was approved of, and the council agreed to purchase the tricar fitted with Dunlop tyres for £95 2s.

The French A.A.

An association has been formed in Paris similar to the A.A. Its agents will warn members when they are exceeding the speed limit, and generally carry out the same offices as the A.A. agents perform in England. The name of the association is the Association Générale Automobile. The agents are provided with a staff in the form of a fan which can be unfolded to display one or all of the following words: Ralentir (slow down), fumée (exhaust smoking), lanterne (rear light extinguished). They claim to be acting in concert with the police.

The Buyers' Guide Next Week.

Next week will be published *The Motor Cycle* Buyers' Guide. It will be even more complete than the guide published in 1906, and there will be a larger number of machines included. Prospective purchasers of motor cycles will merely have to refer to the very full particulars in this guide to enable them to make a decision, and if machines are ordered without delay in many cases delivery can be obtained before Easter.

Quarterly Trial Awards.

The A.C.U. has decided to award non-stop certificates to W. G. McMinnies and J. Marshall, who both rode 3½ h.p. Triumph motor bicycles in the Quarterly Trial from Uxbridge to Banbury and back on the 25th ult.

Turin Motor Cycle Race.

The race organised in connection with the Turin Exhibition was held on the 26th ult. in a dense fog, so the climatic conditions under which the Auto Cycle Union Trial was held had spread themselves over the greater part of Europe. The circuit was thirty-five kilometres, and in the case of the motor cycles had to be covered twice, or a total distance of about 43½ miles. In the lightweight class there were three Motosacoches and one Moto-Rêve. In the Half Litre class one Moto-Rêve and one Peugeot. The three Motosacoche machines all completed the distance, the winner occupying 2h. 31m. The Moto-Rêve was not placed. In the Half Litre class the Peugeot won in 2h. 17m., and the Moto-Rêve was again unplaced.

Lightweight Motor Cycles gaining Favour.

We understand Sir William Egerton, Governor of Lagos, West Africa, has just placed an order with Messrs. H. and A. Dufaux (England), Ltd., of 65, Holborn Viaduct, E.C., for three Motosacoche motor bicycles. This is a repeat order for his staff, as he is so delighted with the machine he already has. Following the example of the Governor, Lieut.-Col. Moorhouse and Major H. Trenchard, both of the Southern Nigeria Regiment, have also placed orders for these smart and reliable little movers for use in the Colony.

1 in 70 Motor Cyclists.

The village of Lamberhurst, Kent, boasts eight motor cyclists out of a total population of 1,700, and a photograph of a group of the riders was published on page 83 last week. A Market Deeping (South Lincolnshire) motorist, Mr. P. J. Bright, writes that Market Deeping can boast of fourteen motor cyclists and five autocarists among a population of less than 1,000, and that this could be improved upon if the adjoining parish of St. James Deeping was included, a boundary stone only separating the two villages. Can any villager improve upon this record?

CLUB NEWS.

The Motor Cycling Club.

On Tuesday, February 18th, the Motor Cycling Club will hold a smoking concert at the Tudor Hotel, Oxford Street, at which ladies will be specially welcome. Dr. Moss Blundell will be pleased to hear from any members who are willing to take part in the performance.

Glasgow M.C.C.

The committee of this club has decided to organise a smoking concert and presentation of prizes, which will be held in the Lansdowne Restaurant, 183, Hope Street, Glasgow, on Thursday, the 13th inst., at 7.30 p.m. Motor cyclists in Glasgow and district will be welcome, and may obtain tickets (price 1s. each) on making application to the hon. sec., J. S. Fulton, 131, West Regent Street, Glasgow.

Worcestershire M.C.C.

The first committee meeting was held on the 1st. inst., when it was decided to fix headquarters at The Golden Cross, Bromsgrove. A draft of rules was drawn up to put before members at the next general meeting. It was decided to ask Mr. H. J. Heaven to become a second vice-captain.

A general meeting will be held at headquarters on February 15th, chair to be taken at 7 p.m.

A Club for North Islington.

At a meeting held at 623, Holloway Road, on the 28th ult., it was decided to form a motor club in connection with the North Islington Conservative and Unionist Association, under the title of the North Islington Conservative and Unionist Motor Club, the offices to be at 623, Holloway Road, Messrs. P. Mulholland, A. E. Jennings, and H. E. Davison being elected chairman, vice-chairman, and hon. secretary respectively (*pro tem.*), and a provisional committee appointed to draw up a scheme to be placed before a future meeting.

Any motor cyclists wishing to join should apply to Mr. H. E. Davison, 623, Holloway Road.

Newcastle M.C.

"Motor Cycling as a Sport and Recreation" was the subject of an interesting lecture delivered on Friday night in the Lovaine Hall, Newcastle-on-Tyne, to a large audience of members of the Newcastle Motor Club and their friends, including a big muster of the Newcastle and District Motor Cycle Club members.

Leaving out the technical side of the subject, Mr. Dunn dealt with it in a more interesting way, briefly describing and illustrating the earliest machines, commenting upon the ridiculous Acts of Parliament in the early days of the motor vehicle, and stated that it was not until the year 1896 that emancipation fell to the lot of motorists.

Some interesting examples were given of the high pitch of reliability to which the motor cycle has been brought.

The lecture was illustrated with about 135 limelight views of various motor cycling events, including pictures of the London to Edinburgh Run, the A.C.C. six days' trials, and the Tourist Trophy Races in the Isle of Man.

Mr. Arthur J. Lucas, president of the Newcastle Motor Club, occupied the chair.

Newcastle and District M.C.C.

The second annual dinner was held in the Continental Restaurant, Grainger Street, Newcastle. Mr. John H. Hall (chairman of the Sheffield M.C.C.) presided, and the vice-chair was filled by Mr. Ernest Hawkins (chairman of the Newcastle and District M.C.C.)

Mr. E. L. Bates proposed "Motor Organisation and Kindred Clubs," and referred to the agitation now in progress for reforming legislation governing motor cycling. He protested against the heavy tax imposed on motor cycles, the amount each individual had to pay, he said, being out of all proportion to the sums charged on motor cars. The police, he thought, showed an overweening zeal in controlling motorists on the highways, and advocated strenuous measures to assert their rights for a fair and reasonable use of the roads. (Hear, hear.)

The Chairman, in responding, congratulated this Newcastle club upon the strength of its membership, and its enterprise in advancing the interests of motorists generally. Motorists, he said, had received no advantage whatever from Imperial legislation. The tax they had to pay was a great injustice, and the only way to have it modified, as well as to effect other reforms, was to thoroughly organise themselves so as to force the hands of both the Imperial and local authorities. Subsequently the Chairman made a lengthy statement regarding the proposed scheme, under which it was suggested the new Auto Cycle Union should look after the welfare of motor cyclists, and appealed to them to staunchly support the reform movement.

Other toasts followed, and Mr. S. W. Carty, the secretary, announced that the N.S.U. Motor Co. had promised either a cup or shield for competition amongst the members of the club, the trophy to be won outright whenever a competitor succeeded in winning it three times, not necessarily in succession. (Applause.)

The Chairman presented the prizes to the successful competitors in the various events decided during the past year.

During the evening a programme of songs and recitations was contributed by Messrs. R. D. Jackson, J. Lynn, H. Thompson, A. G. Ronaldson, S. W. Carty, and A. Brodie.

The committee propose holding a whist drive and dance on the last Wednesday in February. Members are requested to let the hon. secretary know before February 7th the number of tickets they are likely to need, so that all necessary arrangements may be made. Members are requested to bring both their lady and gentlemen friends.

Hartlepools and District M.C.C.

The annual meeting of the above club was held at the Grand Hotel, West Hartlepool, on Wednesday last. The secretary and treasurer's reports were read and passed, and satisfaction was expressed on the state of the balance-sheet. The following gentlemen were elected for 1908: President, Mr. W Ropner, J.P.; vice-presidents, Dr. Wall, Mr. G. W. Sivewright, J.P., and Mr. C. E. Smith; chairman, Mr. H. M. Corner; treasurer, Mr. W. C. White; secretary, Mr. W. T. Walton, jun. Mr. A. E. Smart was elected captain, and Mr. A. Atkinson and Mr. R. W. Alton sub-captains, together with a committee of twelve.

During 1907 the club has organised several events in the shape of hill-climbs, reliability runs, penalty runs, and slow races. Medals have been presented to the club for this year's competitions by Dr. Wall, Mr. H. M. Corner, and Messrs. R. Robinson and Co.

Any new members wishing to join the club should communicate with the secretary at once at 79, Grange Road, West Hartlepool. The annual subscription is 5s.

Lincolnshire M.C.C.

On Saturday there is to be a meeting of motor cyclists in the Scunthorpe, Frodingham, and Kirton-Lindsey and Brigg districts, for the purpose of forming a centre of the Lincolnshire M.C.C. for that district. Mr. W. J. Brooke, 2, Cliff Gardens, Frodingham, Doncaster, has convened the meeting, and has quite a large number of enthusiasts ready to join the club. Mr. Wilkinson, the secretary of the club, is to attend the meeting, which is to be held at three o'clock, at the Blue Bell Hotel, Scunthorpe. It is believed a most successful centre will be formed, and any motor cyclist in the district will be heartily welcomed at the meeting.

On the following Saturday a meeting of riders in the Grimsby district is to be held, at three o'clock, at the Ship Hotel, Grimsby. The members of the Grimsby Centre will hold their annual meeting, and the prizes won during the year will be presented. It is hoped that if the whole of the motor cyclists in and round Grimsby turn up it will be possible to materially strengthen the centre and the club.

Another fixture is the A.G.M. of the Grantham Centre, on the 20th, when here again there will be efforts to strengthen the centre and the club.

"MOTOR CYCLES AND HOW TO MANAGE THEM."

In the spring of every year the above book is carefully revised and brought up to date. The preparation of the twelfth edition is now in hand, and will be ready in a few weeks' time. This year we intend to attempt to effect this revision even more thoroughly than before by requesting our readers to suggest means whereby the book may be still further improved. Letters should be sent addressed to the Editor *The Motor Cycle*, 20, Tudor Street, E.C., and envelopes should be marked "Motor Cycles and How to Manage Them." Criticisms may be sent up to February 11th, after which date no further letters on the subject will be considered, as the new edition will go to press immediately afterwards.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 70.*)

CREEPING COVERS.

151. Sometimes after driving a machine a little distance the unfortunate owner will discover that the valve shows signs of being dragged to one side. There are two possible explanations of this, one being that the rim does not fit the tyre, the other that the tyre has been driven soft, and when soft subjected to driving strains. It is very bad practice to drive with tyres so soft that cover will creep on the rim, but if the rims are incorrect and the tyres do not fit them, the only course is to have the rims changed by the makers of the machine. With very powerful engines it is wiser to use two security bolts in the rear tyre, and under any circumstances care should be taken to keep the locknut of valve tight against the rim. This is more easily done if a leather or rubber washer be slipped between nut and rim, but no tools should be used to screw up the nut.

PRECAUTIONS WITH TYRES.

152. Always search for nails and cuts at a stopping place. Never allow grease and oil to get on the covers, or water inside them. Wash cuts out with water, and then dry; wash again with benzine or petrol; fill with any well-known tyre stopping, and give it a day to dry. File down any projection, or pare off with a very sharp knife.

REMOVING OLD PATCHES.

153. If steel-studded leather tread is used, it is wiser to have a patch vulcanised on when a garage is reached, as few hand-applied patches are proof against the heat such treads generate. In this case the old patch may be removed by soaking its edges with petrol, gradually working fresh petrol under it when edges are raised, and finally peeling it clean off.

PERISHED VALVE RUBBERS.

154. Moisten rubber in mouth, or even with petrol, and warm it in the hands while still damp. Spares should always be carried, as a perished rubber usually sticks in the valve tube.

DOUBLE PATCHING.

155. If machine is very heavy and powerful, after an ordinary patch has been applied, safeguard it by overlaying a second and larger patch of very thin rubber.

PATCHING ON THE INSIDE.

156. One advantage of detachable tubes of the continuous air current pattern is that they may be patched on their inner side, where the patch is safe from friction, and is also held up in position by air pressure. This inside patching is easily done with a puncture near the ends of tube, and if it is almost central, the tube may be turned inside out with any improvised mandrel, such as a tyre pump barrel, or even without a mandrel.

FRONT TYRE PUNCTURES.

157. Front tyre punctures are fortunately exceedingly rare, their special abomination lying in the difficulty of replacing the semi-inflated tube with the weight of the machine resting on the rim. If no front wheel stand is fitted, a little search and labour can usually provide a stone from an adjacent wall, and when this is laid beneath the crankcase, the front wheel is thoroughly accessible. Failing this, the machine may be slung to a gate with a piece of cord attached to the front forks, so that the front wheel clears the ground.

SECURITY BOLTS.

158. The motor cyclist is often afraid of security bolts, but they are well worth having on a tricar, and also on a fast bicycle. If a tyre bursts at high speeds on a bicycle the beaded edge may come out of the rim and jam the wheel, but if security bolts are fitted, it will remain in place till the machine is stopped.

Security bolts are made too long for motor cycle wheels; 1½in. stems are ample, and longer bolts should be cut down to this.

To remove bolts, deflate tyre, unscrew wing nuts, push bolt up into cover, and cover will come off rim as if no bolts were fitted. Leave bolts in position whilst attending to tube.

To replace, pull bolts well down into rim, and lay tube over them carefully without creases. Put a little air in tyre and replace cover, pushing up each bolt as it is reached, so that bead of cover may be slipped under it. As soon as the whole circumference of bead is in rim press up each bolt in turn; if they press up easily, straightly, and rebound when released, there is no nipping.

HINGED MUDGUARDS.

159. A motor bicycle should always have a hinged joint in the rear mudguard, to permit of its being swung back to give easy access to the rear tyre.

FITTING NEW COVERS.

160. To fit a new cover is sometimes an astonishingly difficult task, especially with tyres exceeding 2½in. in section. If on front wheel of tricar, get about twelve inches of beaded edge into the rim, and then remove jack, leaving wheel with inserted portion of cover at bottom. The weight of the machine will then hold this portion of cover in place, while the rest is inserted. Bicycle tyres rarely occasion any difficulty, but should they do so the cover may be threaded over axle, wheel replaced in forks, and the above procedure imitated. A set of full size car levers may be kept for use at home, to supplement the three pocket levers usually carried on tour.

TUBES PUNCTURING FROM THE INSIDE.

161. Causes are as follows:

1. Tube nipped between edges of cover in fitting.
2. Tube run deflated, and so nipping itself, though correctly fitted.
3. Absence of rim tape and protective flaps allows tube to chafe on spoke heads.
4. Tube made of very bad rubber.
5. Tube twisted in replacing.
6. Tube too thick, too long, or too large for rim.
7. Cover a bad fit in rim; cover then rolls and kneads inside circumference of tube between its flaps. Such rolling usually produces indentations on inner circumference of tube resembling an empty pea pod.

Variable Gears for Motor Bicycles.

GENERAL.

162. A variable gear is an undoubted necessity on any but a powerful motor bicycle handled by an expert. The advantages are:

1. Ease of starting. Any motor bicycle so fitted may be started at a walk in its own length.
2. In traffic a slow speed is possible. If stopped the machine may be paddled off with the feet, no dismount being needed.
3. Absolutely any hill may be climbed under any circumstances. Many of the trade riders fail on hills in trials for temporary reasons, and there is no amateur who has not frequently failed.
4. In greasy weather steep hills may be taken slowly instead of fast, as is inevitable with a single gear; also a machine skids less the lower it is geared, and dangerous patches of grease may be safely taken on a low gear, when a skid might occur on the high.
5. A rider may stop and restart on any hill without fatigue.

TYPES OF GEAR.

163. Variable gears are yet in their infancy; only one or two machines are sold complete with a variable gear—it usually adds a disproportionate sum to the price, and is not always sound.

ADJUSTABLE PULLEYS.

164. Adjustable pulleys provide an admirable and inexpensive substitute for variable gears in solo work—they are practically useless for passenger work. The best variable pulley is that which has fewest parts, and is quickest adjusted to a new ratio.

¶ *"The Autocar," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. Issued weekly.*

A VIENNESE LADY MOTOR CYCLIST.

(1.) A practice spin.
(2.) Starting for a ride.
(3.) On a 1 in 4 gradient.
(4.) Rough and loose ground.
(5.) Can manage it quite easily now.
(6.) Going home. Good-bye!

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The A.C.U. Quarterly Trial.

[3090.]—There is a slight, but to me important, inaccuracy in the report of the Quarterly Trials in your last issue. At the ascent of Dashwood I am said to have "stopped near the top but restarted." As a matter of fact, I made a non-stop run to Banbury and back as far as Gore Hill, where a partially frozen carburetter brought me to a complete standstill for a moment. Owing to the damp atmosphere and the perfectly awful state of the roads, no test could have been more severe or demonstrated more emphatically the practical usefulness of a sidecar attachment. I wish to add, as matter of general interest, that my passenger weighed twelve stones.

(Rev.) E. W. HASWELL.

Non-skidding Tyres.

[3091.]—With reference to the correspondence in your paper *re* rubber and steel studded tyres, I should be very much surprised to hear and disinclined to believe that one of the former would outlive three, two, or even one of Brooks's studded tyres under similar conditions.

I have just had a 26 by 2½ Brooks fitted to my back wheel. The studs are much harder than any others I have seen, and I shall be surprised if they wear quickly. I am, at all events, immune from cuts and punctures in my back wheel, which would not be the case with a rubber studded or plain rubber cover.

C. A. CROW.

Illumination of Sidecars.

[3092.]—I should like, with your permission, to call attention to a necessity which seems to have escaped the notice of some users of the sidecar.

I refer to the illumination of the latter. Motor cycling into town after dark a few days back, I was about to overtake a vehicle, at the same time making allowance for a single light coming towards me (I suspected that of a motor bicycle), when, almost too late, I recognised that it had a sidecar attached. The sidecar being dark in colour, and behind the rays of the motor bicycle headlight, was not discernible until within close range.

I therefore suggest that all sidecarists should take the precaution of attaching a lamp to the car as well as to the motor bicycle.

ARCHIBALD J. SPROSTON.

The A.C.C. Meeting.

[3093.]—I am again compelled to reply to Mr. Straker, and point out further inaccuracies in his letter in last week's issue of *The Motor Cycle*.

He compains that I have never answered a letter (challenge, he calls it) in the *R.A.C. Journal* of November 4th. I will point out that there was no *R.A.C. Journal* published on the 4th, but on the 7th there is a letter published over his name, and to this I replied, and if Mr. Straker will kindly turn up page 547 of the *R.A.C. Journal* for November 14th he will see it in cold type.

I might let my letter end here, Mr. Editor, but if I do Mr. Straker will have another shot at me, and I one at him, because I am aware of another letter written by Mr. Straker, and which appeared in the *R.A.C. Journal* on November 21st. This is, no doubt, the one your correspondent refers to. I sent a reply to the Editor of that journal, expecting it to be inserted in the issue of November 28th, but instead is a short statement by the Editor that he is unable to insert further letters *re* organisation of motor cyclists. Thus, M Straker is not only wrong with his dates, but also with h facts.

I would point out to Mr. Straker that whatever corr spondence has appeared in other journals it has nothing do with the matter in *The Motor Cycle*, and is no excuse f avoiding my challenge. Let him prove himself a man, a substantiate what he said, if he can, or withdraw the stat ments. If he decides to do neither, I suggest that he "f ever hold his peace," as they say on some occasions certain interesting ceremonies.

JNO. H. HALL.

Side-slip.

[3094.]—Seeing some correspondence lately about t effect of "board-hard" or partially deflated tyres on sic slip, I made the following experiment. The machine us was a 5 h.p. Twin Rex. On the back wheel was a pla cover from which all the raised tread had been worn awa I chose a morning after a heavy white frost, which h thawed under a hot sun, forming, in my opinion, the wo form of grease. First, I pumped the back tyre absolut hard, and rode on an ordinary macadam road, turning a swerving quickly. There was practically no sign of sk ding, except gettting up a steep camber. Then I defla the tyre till visibly depressed by my weight. This time had several skids, and, indeed, came off. Next I took t machine to the stone setts on which the tramlines are la Here I found the soft tyre did not slip, but when pum very hard the back wheel played all sorts of tricks with r If you think this would lead others to give us their opini I should be very glad to see the matter discussed. Ne less to say, I read *The Motor Cycle* every week. I may the machine is very steady on wet roads.

C. BOOTH JONES

Does an Air-cooled Engine Overheat?

[3095.]—I notice Mr Walford has returned to the ov heating subject, and concludes his arguments by asking th who believe overheating to be a fact to say "what actua occurs inside the engine when the engine overheats, and wh the effect is on the engine to cause it to stop."

In my opinion three things happen:

1. Attenuation of the charge through contact with overheated cylinder walls, combustion head, and piston.
2. Deterioration of the lubricating oil under the gr heat.
3. Pre-ignition

Mr. Walford dismisses the first reason as being of no count, but I contend that the more heat retained in the cyl der when the fresh charge enters the more will the gas expanded, and loss of power must result. The second rea is, I think, obvious to all, and can be remedied by lubricat more freely. The third reason is a result of the first, a occurs in this way: As is generally known, the compress used on modern motor cycles is as high as experience proved to be advisable, and the limit—about 90 lbs. square inch, I believe—cannot be exceeded without render the motor liable to become self-firing, the heat generated the action of compressing, together with the heat retain from previous explosions, being sufficient to fire the charge

If this be borne in mind it will be apparent t excessive heat must interfere with the working of the engi As an overheated engine tries to climb a stiff hill the pov falls off (reason 1), the speed drops, and then pre-ignition s

in, and no matter how much the spark be retarded the engine will knock itself to a standstill. Putting aside worn bearings and carbon deposit, can Mr. Walford explain how any engine can possibly knock unless the ignition, for some reason, is occurring too soon? Real overheating, as I have experienced it, is generally accompanied by a loud clanging at slow speeds which no adjustment of throttle or spark will stop.

Mr. Walford's oil theory with regard to a certain machine on a hill is rather thin. If descending the hill with the exhaust valve lifted did enable the cylinder to become well oiled, by the time the steep portion was reached on the second attempt it is pretty certain the condition of the cylinder with regard to the oil was the same, if not worse than before. The only difference, I believe, was that the engine was cool.

Mr. Walford has compared the motor cycle engine with that on a car. Can he tell us how far a car would continue to run if the water circulation was stopped, or explain why the throttle on a car can be opened with impunity? Is Mr. Walford prepared to support his arguments by driving an air cooled motor cycle engine for fifty miles on full throttle?

Another point is that, under whatever category you place "retention of exhaust gases," it remains a fact that a throttled exhaust soon makes an engine very hot.

In conclusion, experts when competing in a hill climb do not run the engine on the stand to make it hot. Their idea is to thin the oil and supply sufficient warmth to vaporise the petrol and so obtain an easy start.

A. W. BROWNE.

[3096.]—I read with much interest Mr. Walford's reply on the "Overheating of Air-cooled Engines."

I think my case in some ways (at any rate respecting my 1907 mount, a 3½ h.p. Rex) coincides with that of Mr. Powell with his 3 h.p. Raleigh-Fafnir, though my machine had no two-speed gear.

On two occasions last April I made non-stop runs from London to Bournemouth, and in each case I was pressed for

A.C.U. Quarterly Trial. Gordon L. Fletcher (2 h.p. Moto-Reve) nearing Ilkley. Three other competitors can just be discerned emerging from the fog.

time, consequently I ran "all out" for at least two-thirds of the distance; that is to say with all the air I could give it, and throttle well open.

The second run was made at night, and I noticed on several occasions the region in the neighbourhood of the exhaust valve cap was at a "dull red" heat, though at no time did the engine exhibit any signs of overheating, nor did it fail me on any hill. Naturally, I kept the engine well supplied with oil, giving it a charge every seven or eight miles. The machine had a 5½ to 1 gear, and last summer I rode it all over Cornwall, where, as I daresay you know, hills are, on the average (to put it mildly), fierce. I often had the engine in the "pink" condition, but never experienced pre-ignition, or any loss of power on hills owing directly to this condition. Mr. Powell, of course, used a 10 to 1 gear on Birdlip, in which case the results I obtained would be more marked owing to the extra power developed at the high engine speed.

I am convinced, however, that an engine of 3½ h.p. in perfect condition, with a gear of, say, 5½ to 1, will not lose power on an average hill from overheating, unless by faulty driving the speed should be allowed to fall below a certain critical value, in which case, owing to the tardy working of the piston and the consequent sluggishness of the suction stroke, the charge becomes pre-ignited as a result of this "pink" condition.

Though by no means contending that overheating is a fact, I would suggest that the ultimate failure of a single geared motor cycle on a stiff hill is due solely to the falling off in power of the engine owing to the slackened speed, this giving rise to pre-ignition as before stated.

Mr. Walford's second question, "What the effect is on the engine to cause it to stop," scarcely needs explanation, the effect of pre-ignition being obvious.

On his third point I can make no comment, as I have not as yet heard any evidence that Tourist Trophy machines were not troubled with this so-called "overheating."

HAROLD B. T. CHILDS.

Lightweight Motor Bicycles.

[3097.]—Referring to "Ixion's" article in *The Motor Cycle* of January 15th, he says: "Again, with battery ignition, one could never feel comfortable on tour with less than two 20 ampère hour cells."

Might we state that on the Motosacoche we supply one accumulator of 20 ampères capacity, measuring 5¼ × 3 × 4 and weighing 5½ lbs. We mention this because many of the 20 ampères accumulators are so in name only, and to show that, although we have economised in weight in many parts of our motor cycle (the total weight is 75 lbs.), the accumulator we have supplied is one sufficient to carry a rider through the longest tour.

By our scheme the coil is fitted with a separate condenser, and will be found wonderfully economical in current, and, although it appears a bold statement to make, we have frequently known riders have the same accumulator in constant use without recharging. Certainly the machine will run over 1,000 miles on the one charge, and if "Ixion" would like to test the truth of our statement we should be very pleased to place a machine at his disposal. We certainly intend entering our machine in the End-to-end reliability trial next June, and we shall expect to get through on one accumulator.

H. AND A. DUFAUX (ENGLAND), LTD.

Chains.

[3098.]—I have just read "P 1943's" letter in *The Motor Cycle* in favour of the chain as opposed to the belt, and I hasten to correct sundry obvious inaccuracies in it.

1. I was thinking of first cost, but I actually pay more for new chains than for new belts. I cannot afford belts at 4s. 6d. per foot.

2. I never had a belt that threw dirt on me, nor a chain either, for that matter. I should like to give him a chain after 1,000 miles' driving, and myself take a rubber belt which had done exactly the same distance, and see which of us had finished his cleaning job first—at least, on second thoughts, I should not like to make this experiment, because I know its result. The same is true—but less striking—of any leather belt.

3. A chain will run for ever if not broken. But it will be so badly out of pitch as to cease to satisfy a careful rider much sooner than a belt will give up the ghost. Its life may be the longer, but its efficiency is briefer. Also, my record belt mileage is considerably longer than my record chain mileage.

6. There has probably never been a smash due to a belt breakage in the history of motor cycling; I myself have had eight through chains snapping.

7. If a belt-driven engine jams, the rider will *not* be thrown, as "P 1943" untruthfully asserts, for the belt will "run through" the pulley, and, unless the rider is a frightful ass, his stoppage will be made in the vertical plane, and with

him in the saddle. If he had a chain drive, he and the machine would part company, and stop in the horizontal plane. The prospect of an engine jamming is not so distant as to make the precaution worthless.

9. Not fair reasoning, "P 1943." A bad driver will do his engine far less harm with belt transmission, and you know it.

10. Many forms of chain drive exaggerate side-slip very considerably.

11. If "P 1943" is talking of maximum efficiency obtained for a short period, both chain and belt show about equal efficiency. If he prefers to take the more practical point of view, as to which best maintains efficiency, the facts are that the chain loses it sooner, and that with a chain drive it cannot be restored without buying a new chain, owing to loss of pitch; but with proper pulleys, a belt only needs to be cleaned for maximum efficiency to be restored—*e.g.*, I have a machine in my shed at this minute, which cannot win a hill-climb until I have spent 30s. on it. Had it a belt drive, it could win a hill-climb without the expenditure of a farthing. The chain drive is clean, well adjusted, etc., but is worn, reducing efficiency by about fourteen per cent.

Lest "P 1943" should think I am a bigot talking at random, I will inform him that I have over 40,000 miles' experience of chain drive on motor cycles, and that for solo work consider it unspeakably inferior to the belt. If, as "P 1943's" letter implies, he has no recent experience of belt drive, he ought now to try a belt-driven machine with an inch rubber belt and twenty-eight degree pulleys. He would scarcely attempt to write up the chain again. Some of us use it for special purposes, almost exclusively connected with two-speed gears and passenger work, but the verdict of motor cycle makers and users is as nearly unanimous as possible against the chain, and "P 1943" must yield to hard facts, if he will not yield to logic.

ROAD RIDER.

Lubrication.

[3099.]—Referring to the correspondence on this subject, I think lubrication on motor cycles is far from being an exact science. I fear at present a lot of oil is wasted; the point is to know the quantity in the engine at a given time, then we could act accordingly. [A gauge is fitted to some of the F.N. patterns.—ED.] As it is, we give oil "in the dark." If some means were devised of showing (by gauge or otherwise) how much oil there was in the crank case, it would make for economy and increased efficiency; it would also keep the engine and valves much cleaner.

I doubt if Mr. Dudley's oil-well would answer. I do not see that there is room for it, nor how he would keep the oil from running out of it into the lower part of the crank case (where most of it would be superfluous); also the rapid motion of the piston would deplete it in a few strokes. I would offer as a tentative suggestion that an annular groove be formed near the base of the cylinder, supplied through an adjustable strong sight-feed lubricator connected to oil tank with a tap between. One could thus regulate the feed.

We have no need to lubricate anything but the piston; the other parts of the engine would be amply fed by the oil dripping from it. If the lubrication of the piston could be effected more economically, less oil would work past the rings to be burnt and cause deposits.

I think release valves are not always properly designed. A proper release valve should be readily accessible, have a non-return arrangement, be of ample size, be covered so as to prevent soiling the clothes, and should convey any oil blown past it into a reservoir or on to the ground clear of the tyres. Owing, I suppose, to an insufficient release valve, I continually find my contact breaker covered with oil blown out of the bearing, which soon stops the engine firing.

L 7665.

Twin Engines and Compression Space.

[3100.]—Your contributor, "Ixion," remarking on the difference in compression in the front and rear cylinders of a twin V type engine, makes the statement that the forward cylinder receives more oil than the rear cylinder. Surely this will not be so in cases where the oil duct enters the crank case to the rear? One would naturally suppose in this case that the oil, turned in a forward and upward direction by the rotation of the flywheels, is intercepted by the rear cylinder, so that less than fifty per cent. of it ever reaches the forward cylinder. In my own engine this is certainly the case, as every time I have taken it down the forward cylinder and piston are clearly slightly under-lubricated, whereas the rear cylinder is equally clearly over-lubricated, as far as I am able to judge from the gummy deposit at the base of the cylinder, forming a ring on the cylinder walls and on the baffle plate. The back cylinder also starts oozing oil between crank case and cylinder before the front one, and invariably keeps cooler than my front cylinder. I have partially remedied this by drilling two large holes in the baffle plate of the forward cylinder.

While on the subject, I may point out that to ensure equal lubrication of both cylinders makers should fork the oil duct and lead one fork to enter the crank case between the cylinders, the other at the rear of the rear cylinder.

I agree with all that Mr. Fawcett says *re* the position of a twin. Now that two or more speed gears are beginning to be appreciated, I hope we shall see some makers marketing their next year's twins with the engine set across the frame (so that each cylinder gets equal draught), a light gear box or set of epicyclic gears, and a worm drive. This position of the engine presents, to my mind, another excellent feature, viz., instant accessibility.

A 9687.

Outside Flywheels.

[3101.]—The main points at issue between the outside and the inside flywheel engines are construction of crank-shaft and the question of weight.

A built up crankshaft, if properly designed and fitted (and there are plenty to be had) will go together again without getting out of truth if ordinary care is taken. Should the shaft be bent by accident, it is no more difficult to straighten than a forged solid one.

To prevent damage in a spill, even at fourteen miles per hour, very stiff footrests are required, and they must be attached to a stiff part of the frame. So, if we are to have larger crankshafts on account of greater strain and softer bearing surfaces, and we need stiff footrests, the saving in weight is more apparent than real.

Undue friction between the inside flywheels and the oil is owing to insufficient clearance between the flywheels and the crank chamber. An extra $\frac{1}{16}$in. should remedy this. I should like to point out to Mr. de Havilland that to fit the flywheel on the cone without a key will result in slipping or seizing, according to the amount of taper of cone, unless the engaging surfaces are hardened.

Also his proposed crank-shaft is not much better than an overhung or single web-shaft, and he cannot further reduce the size of crank chamber because of the larger web required to take the coned end of the crank pin.

There are other items which should not be overlooked in the outside flywheel engine. For instance, the engine pulley by mechanical necessity is on the inside of the flywheel. How can we adapt the very useful adjustable pulley?

Again, in these days of the low-built frame, there is none too much clearance between the engine and the ground. A large outside flywheel will make it much less and put the crank-shaft in jeopardy, to say nothing of the inconvenience when wheeling the machine over a deep step.

A. HINTON.

EXPERIENCES WANTED.

"C. W." would like experiences of the Whittle belt on a 5 h.p. Peugeot with sidecar.

Bernard, C. S., would like to have readers' experiences of an Ariel coupler in use with a motor bicycle.

"Old Dunelmian" would like readers' experiences of the Vindec two-speed gear and free engine after using it for two or three thousand miles.

SUMMARY OF CORRESPONDENCE.

Mr. W. Montgomery writes: "I am surprised to note that Mr. Haslam is not prepared to carry his challenge through. I would remind him that when he issued his challenge he did not mention the Montgomery sidecar, but he referred to the 'flexible sidecar.' If my new pattern sidecars for 1908 were not flexible and did not retain all the well-known advantages of the flexible connection, Mr. Haslam would be right in his objection; but when I state that my new patterns, although being free from side-slip, still retain unimpaired every distinctive point associated with them in the past, Mr Haslam's objection is, to say the least, rather strained."

VINDEC · SPECIAL

THE · MOTOR · CYCLE · OF · MERIT.

S.B.T. Co LTD

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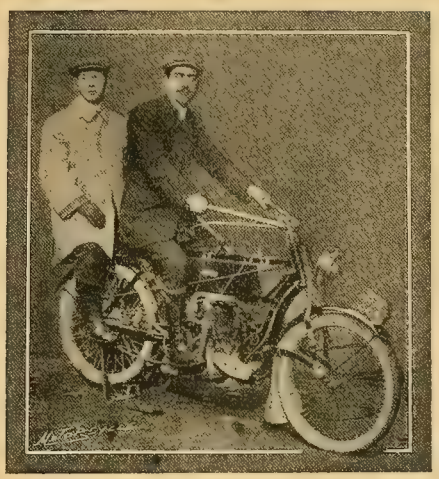
'Vindec' Two-speed Gear Testimony.



Mr. H. HOWARTH, author of the interesting series of articles—"TO SWITZERLAND AND SAVOY BY MOTOR CYCLE," which recently appeared in this publication, rode a Model F machine with our two-speed gear, with another passenger mounted over the rear wheel in which the two-speed gear hub is fitted. The machine made the entire journey without an involuntary stop, except three tyre punctures.

In a letter to us dated October 15th, 1907, he states:

"I must say I am delighted with the 'VINDEC.' The machine went through a Continental tour over a good deal of the ground covered by Mr. ——— in the tour he is at present describing in *The Motor Cycle*; but the 'VINDEC'S' performance was very different to that of Mr. ——— mount; in fact, although carrying two passengers it went through the whole tour without an involuntary stoppage (except for three punctures), covering just over 2,000 miles (England, France, and Switzerland) in seventeen days. I AM HIGHLY PLEASED WITH THE TWO-SPEED GEAR, WHICH HAS NEVER FAILED ME YET. I purchased the 'VINDEC' under the impression that it was the best motor cycle extant. After a season's riding this impression has become a firm conviction."

The rider of a "VINDEC SPECIAL" may feel sure that his machine will take him anywhere and bring him back without a breakdown.

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ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given, c/o *The Motor Cycle*, 20, Tudor St., E.C.

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Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

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HALIFAX Motor Exchange.—1907 shop-soiled machines at clearance prices. Great bargains. Exchanges in all 1908 Rex and N.S.U. models.

HALIFAX.—1907 3½ h.p. Rex, 26 by 2¼ Continentals, spring forks, soiled; 19 guineas, November price £26 5s.

HALIFAX.—1907 35 guinea twin Rex, spring forks, soiled; £23; you save £13 15s.; we gain your confidence.

HALIFAX.—1907 magneto twin Rex, unridden, November price, £42, our price £28 10s.; another £13 10s. saved.

HALIFAX.—1907 black and gold Rex de Luxe, twin tyre, magneto, Roc clutch; 1908 price £55 13s., our price £35; you save £20 13s.; we cannot keep this up indefinitely.

HALIFAX.—1908 Rex de Luxe, Roc clutch, two-speed gear, magneto; 55 guineas; liberal exchange.

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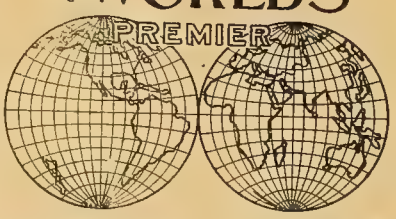
HALIFAX Motor Exchange.—Extended payments, exchanges; high class machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766.

The WORLDS'



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Searchlight Head Lamp.

Plated, with separate generator, 30/- As illustrated, size 6in. high × 4¾in. wide × 5½in. deep.

This is a miniature car Bleriot type lamp specially adapted for motor cycles. The great need for this is proved by the recent correspondence in "The Motor Cycle" and the orders now pouring in for them.

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Triumph 3½ h.p., 1907, almost new	£35
Triumph 3 h.p.	£30
N.S.U. 3½ h.p. magneto	£22
Rex Twin 5-6 h.p.	£17 10s.
Quadrant 3½ h.p. magneto ..	£25
Quadrant 3½ h.p. 1908, new model, soiled only	£35
Brown 3½ h.p., as new	£30
Vindec Special 3½ h.p., 2-speed gear	£35
Rex Litette, new, soiled only	£68 10s.
Riley Tricar, 9 h.p., 3 speeds	£52 10s.
Rex 3¼ h.p.	£9 10s.

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HALIFAX.—£2 deposit and six monthly payments of 27s. 6d. secures 2¾ h.p. Antoine, 2¾ h.p. Kerry, 2¾ h.p. Excelsior, 2¾ h.p. Humber, 2¾ h.p. Ormonde, 2¾ h.p. M.M.C., or 3 h.p. Auto Motor. All guaranteed running order.

HALIFAX.—Rex twins; only ten left, but they're good 'uns; £22; spring forks, 2¼ tyres; allow £16 for good 1907 machine.

HALIFAX.—4 h.p. twin-cylinder Werner, 26 by 2¼ Michelins, very smart mount; £18.

HALIFAX.—2¾ h.p. F.N., spray, 26in wheels, vertical engine, very speedy, good condition; £14 10s.

HALIFAX.—3 h.p. Rover, 26 by 2½in. Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

HALIFAX.—3½ h.p. 1906 Minerva, non-skid to rear, a grand winter's mount; £19 19s.

HALIFAX. — 2¾ h.p. Antoine, spray, trembler coil, accumulator ignition, girder forks; only £10 10s.

HALIFAX.—4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £18 10s., perfect order.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, and sidecar; £27 10s.

HALIFAX. — 5 h.p. Rex, Longuemare, trembler coil, Clincher tyres, Fish-back belt; no offers; £16 15s.

HALIFAX.—3½ h.p. Rex, 22in. frame, vertical engine, trembler, good order; snap this, £11 10s.

HALIFAX.—2 h.p. Minerva, mechanical valves, spray carburetter, magnificent climber; only wants seeing; £8 10s.

HALIFAX.—2¾ h.p. Minerva (1906), spray, accumulator ignition, very efficient mount; £14 10s.

HALIFAX.—1907 Rex de Luxe, magneto, twin tyre, Roc clutch, spring forks; £29; exchanges wanted.

HALIFAX.—1907 twin Rexes, some merely soiled; no complicated speed gears required; £22; buy now, to-morrow may be too late.

HALIFAX.—1907 3½ h.p. Rex, spring forks, shop-soiled, accumulator ignition, 1908, black finish, tyres (2¼) unscratched; £21.

HALIFAX.—3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15 15s.

HALIFAX.—Light low Rex, spring forks, Longuemare, in very good order; £14 17s. 6d.

HALIFAX. — 1906 twin Minerva, fitted with improved Osborne four-speed gear, 26 by 2½ Continentals, almost as new; £26.

HALIFAX.—2¾ h.p. Antoine, spray carburetter, trembler coil, tyres good; bargain, £10 10s.

HALIFAX.—6 h.p. twin Rex, cantilever seat, non-skids to both wheels; £22 10s.

HALIFAX. — 3 h.p. Automotor, 19in. frame, 26in. wheels, spray, vertical engine; £10 10s.

HALIFAX.—2¾ h.p. Coventry Eagle, Buchet engine, vertical, spray, tyres, enamel, and plating excellent; £12.

HALIFAX.—Leader lightweight, Minerva engine, light, low, and good; recommended; £6 10s.

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MAUDE'S.—4½ h.p. 1907 Minerva, exactly as per maker's catalogue; listed at £42, brand new, £30.

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MAUDE'S.—5 h.p. Rex, spring forks, tremblers, 1907 model, like new, including tyres; £22; £8 and your 1906 3½ h.p. machine secures.

MAUDE'S.—5 h.p. Rex, spring forks, beautiful condition; £19, our price; we save the shillings.

MAUDE'S.—Phelon and Moore, two-speed gear, complete with sidecar; come along, only the price of a decent engagement ring; £25.

MAUDE'S.—2¾ h.p. De Dion, spray, long handle-bars, £12; another, good condition, £8.

MAUDE'S.—Lady's motor cycle, Vapp. carburetter; £8.

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MAUDE'S.—Special prices for cash. Minerva, 1¾ h.p., £4; 2 h.p. Minerva, £6; 3½ h.p. M.M.C.; 1½ h.p. Minerva, £3 19s. 6d.; 2 h.p. Humber, £6; the above are special lines for spot cash.

MAUDE'S.—Eight beautiful 1905 Rexes, all in perfect order and condition; £12.

MAUDE'S.—3½ h.p. Rex, trembler, very good, 2in. tyres, 22in. frame; £5 15s. and your cycle secures.

MAUDE'S.—Ideal lightweights. Machines we can recommend as lightweights; 2 h.p. Minerva, £8; Ariel, 2½ h.p., £8; Mitchell, 2¼ h.p., £6.

MAUDE'S.—Do not forget the address, Lilly Lane, Halifax, or the telephone No. 433 Day, 904 Night.

MAUDE'S.—Minerva, 2 h.p., spring forks, £9; M.M.C., vertical, spray, 26in. wheels, trembler, £10.

MAUDE'S.—Humber, 2 h.p., spray, trembler, engine like new, and guaranteed, £8.

MAUDE'S.—Humber, 2¾ h.p., a beauty; £9.

MAUDE'S.—Zedel, practically new, exceedingly low, B100 saddle, spray, 26in. wheels; £11.

MAUDE'S.—Jap, 2½ h.p., spray, £8; Phœnix-Minerva, 2 h.p., good condition, £6.

MAUDE'S.—Clyde, 2¾ h.p., magneto, vertical, spray, like new, £10; Rex, 3½ h.p., trembler, £8.

MAUDE'S.—Minerva, 2¾ h.p., vertical, spray, very good tyres, a machine we can highly recommend; £12.

MAUDE'S.—2¾ h.p. Werner, spray, 26in. wheels, vertical, trembler; £8.

MAUDE'S.—Ariel, 3½ h.p., B. and B., vertical, 26in. wheels, in exceptionally fine condition, to be recommended; £14.

MAUDE'S.—Rex, 26in. wheels, 1905 model, perfect; we guarantee this machine to be as new in every way; £15.

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MAUDE'S.—Quadrant tandem, 3 h.p., nearly new tyres, spray, vertical, free engine; £9.

MAUDE'S.—Quadrant, new cylinder fitted, just overhauled, spray; a pity to miss this at £10.

MAUDE'S.—Lloyds, 2¾ h.p., B. and B. carburetter, £12; Humber, 2¾ h.p., spray, trembler, £10.

MAUDE'S.—2 h.p. Werner, 26in. wheels, low built, B. and B. carburetter, perfect; £7.

MAUDE'S Motor Mart guarantee all the above to be in perfect running order, and ready for the road before delivery.

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have finished talking about largest, finest, or cheapest stock of motor cycles, just drop us a line if you want **VALUE.**

Example. For one week we will accept your push cycle (if decent) and £3 for a 1¾ h.p. Minerva Motor Cycle, in guaranteed perfect running order.

For new motor cycles we practically represent all makers for the north for exchanges. We shall be pleased to quote you for any make of motor cycle on the market.

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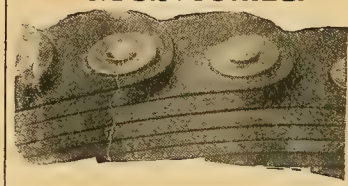

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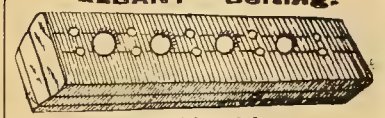

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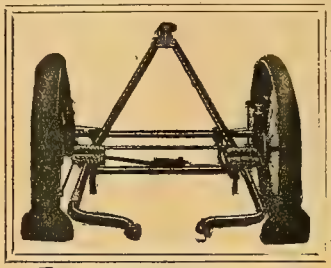

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BIRMINGHAM.—5½ h.p. Rex de Luxe, magneto, clutch; £32.—Below.

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4½ h.p. Twin Minerva, Advance pulley, Whittle belt, spring forks, new tyres, just overhauled, and in splendid condition; £26 10s., or offer; trial.—128, High Road, Tottenham.

5 h.p. Twin Kerry, good condition, any trial, also Montgomery sidecar; together or separately; best cash offer accepted.—Garaged at Denham's, Sandown Cycle Works, Esher.

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6 h.p. Twin-cylinder Singer Tricar, perfect condition; £80, or offer.—Powell, 45, Iffley Road, Oxford.

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SIDECAR? This is better! Light car, perfect, lamps, numbers, spares; £35, or bike and cash.—Norris, 37, Foxley Road, Brixton.

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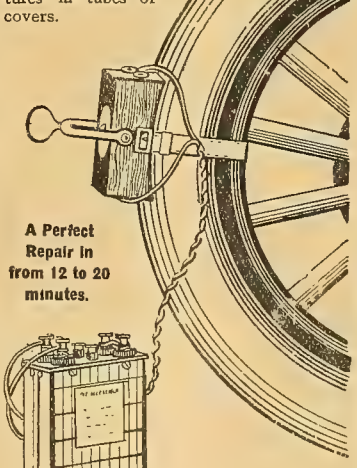

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ROVER Cars, 6 h.p., two-seaters, fast, silent, reliable, wonderful hill-climbers, low up-keep, smart, up-to-date; particulars and trials free; motor cycles and tricars taken in part payment, deferred payments by arrangement; price £130.—Davis and Son, Moseley, Birmingham.

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15 h.p. Gardner-Serpollet, four-cylinder, in grand order; a chance for experimenters and steam car users; first offer near £80 accepted.—Box 9,071, *The Motor Cycle* Offices, Coventry.

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PATENT No. 18,529, 1903.—Improvements in Carburetters for Internal Combustion Engines.—A. and H. Dufaux.

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BOOTH. — Continental tyres. Before buying these get my list; delivery from stock.—Coronet Works, Halifax.

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SPARE Riche's Tube, Peter-Union studded tyre, spare 26 by 2¼ Peter-Union steel studded cover, hardly soiled, run 20 miles; 35s.—Lockwood, 37, New Street, Huddersfield.

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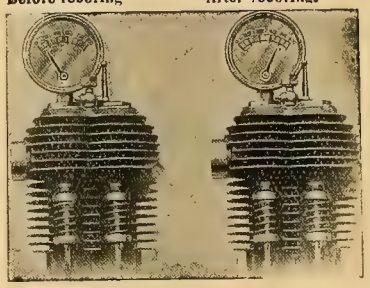

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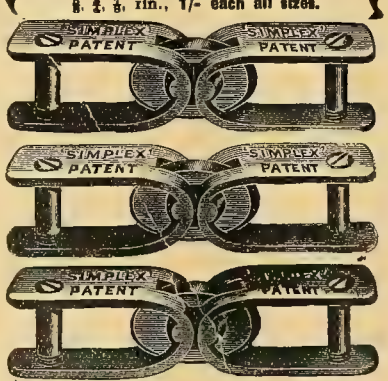

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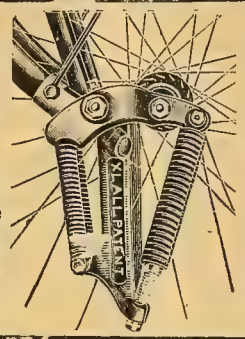

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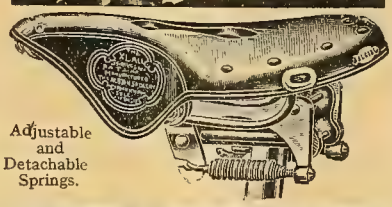

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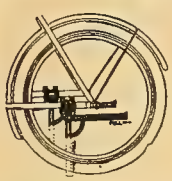

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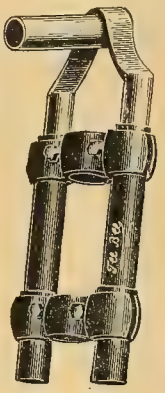

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THE MOTOR CYCLE

Vol. 6. No. 255 Feb. 12, 1908.

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Affiliation of Motor Cyclists.

WE have received an advance proof of the agreement for affiliation to the Auto Cycle Union, which also includes association with the Royal Automobile Club. The question of association with the R.A.C requires some little explanation, otherwise we are afraid motor cyclists may be led to believe that the A.C.U. is to be dominated, which is very far from a fact. There are numerous clubs with a mixed membership, and they will no doubt wish to affiliate their car members to the R.A.C. under its scheme of association for motor car owners and their motor cycle members to the A.C.U. under its new scheme. Consequently, in preparing the agreement for affiliation to the A.C.U. the committee, recognising the difficulty in which mixed clubs would be placed if they had to affiliate part of their members to one organisation and part to another, have introduced this dual arrangement, which will be a matter of convenience, and will be welcomed. A new rule is that members of a purely motor cycle club will *ipso facto* become associates of the R.A.C., and will be entitled to the advantages of such associateship. This is in addition to the representation to which they are entitled upon the council and committee of the A.C.U. For the time being, the question of representation on the committee is in accordance with the present rules of the A.C.U., and representation on the council will be proportionate to the number of members of the clubs which affiliate. Clubs having twenty-five members or less will be entitled to one representative. Clubs having more than twenty-five motor cycling members will be entitled to an additional representative for every additional twenty-five members or portion thereof. The representatives of the affiliated clubs upon the council are entitled to elect representatives on the committee in accordance with Rule 41.

Paragraph 7 of the agreement deals with the question of advice or assistance in any matter relating to automobilism, and states that the affiliated club shall consider the same, and if it deems the matter is one in which assistance should be given, then the affiliated club shall send a report of the circumstances to the A.C.U., and it shall deal with the same in such manner as it shall think fit. Affiliated members shall be entitled to the following advantages among others:

(1.) A copy weekly post free of the *R.A.C. Journal.*

(2.) Full benefits of the Legal Department of the A.C.U. and R.A.C.

(3.) The right to exhibit the badge of the A.C.U. and the associate badge of the R.A.C.

(4.) The right to participate in all open trials and competitions organised by the A.C.U. or R.A.C., and to compete at reduced terms when it is in the power of the bodies to so arrange.

(5.) Participation in the closed competitions organised by the A.C.U. for its affiliated members.

(6.) The right to receive a permit for open competitions under A.C.U. and R.A.C. rules at half the usual fee.

(7.) Reduced entrance fees where possible for open race meetings and other competitions promoted by the A.C.U.

(8.) Right to be entered upon the competitors' register of the A.C.U. and R.A.C. upon payment of one-half the fee, provided the application form be countersigned by the secretary of the affiliated club.

(9.) Usual touring facilities provided.

(10.) Copy annually post free of the "R.A.C. Handbook" to all motor cycle members at the option of the Club on the payment of one shilling per member.

(11.) The fees for motor cycle members will be a capitation grant of two shillings a head per annum to the A.C.U., which shall in each subsequent year become due on the 1st January, and be paid not later than the 30th June.

The question of the date of payment of these fees has been raised by Mr. J. H. Hall, of the Sheffield and Hallamshire M.C.C., and the secretary and treasurer of the Newcastle and District M.C.C., and it appears that, in the case of clubs which have not been affiliated to the A.C.U. previous to 1908, the payment of the fees on the date of affiliation will be demanded. The officials of the before-mentioned clubs have taken exception to this ruling, and have advised motor cycling clubs to oppose it. We regret this objection, and really cannot see any reason for it. The fees have to be paid, and they may as well be paid at once as on the 30th June next. It is no hardship to clubs with a full exchequer to pay the amount of the affiliation fees forthwith. All the clubs which affiliate at once will have the advantage of being able to vote on questions of importance at the next Council meeting, and if they want to vote there is no reason why they should not pay for the privilege. They cannot expect to attend important meetings and participate in the government of the pastime without paying the affiliation fees, because if they were allowed to do otherwise they might attend such meetings, and if any of the procedure did not meet with their views they could retire and repudiate the affiliation.

In the case of mixed clubs, the affiliation fee for the car members is 5s. per head, payable on the same date in each subsequent year, and there is the usual ruling for those members who own both cars and motor cycles, viz., that they shall be regarded for the purpose of agreement as car members. This rule has always been in force. Paragraph 11 reads that the affiliated club shall govern its own legal affairs, and that all official communications from the A.C.U. or the R.A.C. to the county or local authorities of the area covered by the affiliated club shall be made in consultation with such affiliated club. The affiliated club shall also act in any matter or matters affecting motor cycling or automobilism generally through the A.C.U., and the affiliated club shall at all times and to the best of its power give effect to any recommendations of the Auto Cycle Union in relation to motoring matters.

OCCASIONAL COMMENTS.

Magneto Records.

A car of my acquaintance can beat all the claims I have read for long distance records with magneto ignition on motor cycles. It is a large Renault, fitted with a Simms-Bosch high tension machine. In 8,000 miles the sole attention required has been the refacing of the fibre disc from which the four carbon brushes of the distributer collect. This part is not required on the single-cylinder motor bicycle type of magneto, and thus we may say the record is equal to 8,000 miles without any trouble of any sort on a motor cycle. This beats motor cycle records, and the clue to it obviously is that within a car bonnet the magneto is adequately shielded, and would seem to point to the advantage of carrying the magneto within the tank, as is done on the Bat and Griffon machines. But I also notice the makers fit much more substantial platina to the contact breaker of the car type than to the cycle pattern. I wonder if this has anything to do with it? Personally I find the condensers of motor cycle magnetos are of varying efficiency. Some seasons I have the luck to get a condenser which keeps the platina clean and smooth for huge distances—I think about 13,000 miles is my longest achievement with one set of platina—and perhaps the very next magneto I buy calls for refacing of the points every 800 miles. Will someone tell us why the platina on a magneto contact breaker turn so white, even while they remain smooth?

The Hill-climbing Ban.

The more I reflect on the hill-climbing ban the more I see that it is going to make precious little difference to us motor cyclists, beyond that the trade riders may have to become members of a few extra clubs. I am well content that this should be so. I think the only approach to an accident to the public last year was in a certain car hill-climb, where a handful of motor cyclists were sandwiched into the tail of a car programme, and dispatched up the hill when the public had invaded the roadway. No motor cycling club would be guilty of such an elementary blunder. I think the main room for reform in motor cycle hill climbs lies in the choice of the courses. Club secretaries are anxious to provide sensational gradients, and as these are only found on rather obsolete roads, which are necessarily twisty, there is much danger for the riders, but none for the public who dispose themselves on the slopes behind the hedges. Such dangerous hills as Westerham are no longer used. It has a cross-road just where the rider is travelling at his fastest, and the spectators are compelled to stand in the narrow lane itself. I myself have been up it at forty miles an hour riding nervously into a bottleneck of human beings no more than two yards wide. But such conditions are wisely abolished now, and hills are chosen on which the public is safe. The danger to the competitors however, is increased on the sort of hill now in vogue with machines capable of over a mile a minute, and hills full of sharp bends. My opinion is that such hills as Fernhurst should no longer be employed. If a rider is killed in one of these contests, as may easily occur, is almost bound to occur some day soon, other authorities will take over the decision, and a very sporting form of contest will become wholly illegal. A typical sample of an ideal course is Sharpenhoe, on which several climbs were held last year. To begin with, the spectators can obtain a perfect view without running an atom of risk, and though the gradient is not severe, being nowhere worse than 1 in 7, the capabilities of the man and the machine are as much proved by the great speeds attained as by risking necks round fierce corners at lower speeds, and the enjoyment of the spectators is quite as keen, and much less brutal in essence, since it no longer depends on watching a fellow creature risk his neck. I should like to see club secretaries devoting their energies to finding *safe* courses, and leave pure speed, rather than sheer daring, to decide the issue.

IXION.

"The Motor Cycle" Buyers' Guide, 1908.

A List of Motor Cycles on the British Market.

With the approach of Spring, motor cyclists naturally begin to consider the purchase of a new mount. New comers into the pastime, also, in the majority of cases, make their final decision in the early part of the year. We have, therefore, compiled for the benefit of our readers, a complete list of motor cycles at present on the British market, which shows at a glance all the distinguishing and important features of each of the various makes. Prospective buyers will thus be enabled to compare the specifications of the machines they are contemplating purchasing with a minimum of trouble. We would take this opportunity of saying that it is unwise to delay making a decision, as it is only by ordering at once that delivery can be guaranteed before Easter—in fact, some firms are already booked up beyond this date.

SINGLE-CYLINDER BICYCLES.

Name of Motor Bicycle.	H.P.	Bore and Stroke. mm.	Inlet Valves.	Name of Carburetter.	Ignition.	Trans-mission.	Name of Engine.	Standard Gear or Gears.	Height of Frame from Ground.	Standard Frame.	Standard Forks.	Diameter of Wheels.	Standard Size and Make of Tyres.	Length of Wheel-base.	Weight Un-laden. lbs.	Pedalling Gear.	Price.
Adler	3	80×85	A.	Adler	To order	Belt	Adler	4 to 1	28″	To order	To order	26″	2½″ to order	56″	132	Yes	£37 17s.
Advance	3	76×82	A.	B. and B.	Magneto	Belt	Advance	Adjustable	31″	Rigid	Spring	26″	2″ to order	54″	140	Yes	£38 17s.
Advance	3½	84×86	A.	B. and B.	Magneto	Belt	Advance	Adjustable	31″	Rigid	Spring	26″	2¼″ to order	54″	145	Yes	£40 19s.
Anglian	3	74×76	A.	De Dion	Magneto	Chain	De Dion	4 and 8 to 1	30″	Rigid	Spring	26″	2¼″ Palmer	56″	148	No	£50
Anglian No. 1	3	74×74	A.	De Dion	Battery	Belt	De Dion	5 to 1	34″	Rigid	Rigid	26″	2″ Clincher	51″	150	Yes	£36
Anglian No. 2	2½	70×76	A.	Longuemare	Battery	Belt	J.A.P.	4½ to 1	32″	Rigid	Rigid	26″	2″ Clincher	48″	93	Yes	£28
Antoine	4	85×85	M.	Antoine	To order	Belt	Antoine	—	20½″	Rigid	To order	26″	2¼″ to order	51½″	165	Yes	£28 10s.
Ariel	2¾	68×75	M.	B. and B.	To order	Belt	Ariel	4¾ to 1	32″	Rigid	Spring	26″	2″ Liberty	52½″	99	Yes	£33 12s.
Ariel	3	79×82	M.	B. and B.	Battery	Belt	Ariel	5 to 1	33″	Rigid	Spring	26″	2″ Liberty	50½″	140	Yes	£36 15s.
Bat	3½	85×76	M.	Longuemare	Battery	Belt	J.A.P.	4½ to 1	32″	Spring	Spring	26″	2¼″ to order	54″	140	No	£46 2s.
Bat	3½–4	85×85	A.	Longuemare	Battery	Belt	J.A.P.	4½ to 1	32″	Spring	Spring	26″	2¼″ to order	54″	150	No	£46 2s.
Bradbury	2¼	70×76	A.	Longuemare	Battery	Belt	Bradbury	4½ to 1	32″	Rigid	To order	26″	Clincher	51″	130	Yes	£25
Bradbury	3	79×79	A.	Longuemare	Battery	Belt	Bradbury	4½ to 1	32″	Rigid	To order	26″	Clincher	51″	150	Yes	£32
Bradbury	3½	79×85	A.	Longuemare	Battery	Belt	Bradbury	4½ to 1	30″	Rigid	Spring	26″	Clincher	53″	170	Yes	£40
Brough	3½	82×84	A.	Longuemare	Magneto	Belt	Brough	4 to 1	27½″	Rigid	Spring	26″	2¼″ Clincher	54″	180	Yes	£36
Brown	3½	82×90	M.	Longuemare	Battery	Belt	Brown	4 to 1	30½″	Rigid	To order	26″	2¼″ Clincher	52″	160	Yes	£37
Brown	3½	82×90	M.	Longuemare	Magneto	Belt	Brown	4 to 1	30½″	Rigid	To order	26″	2¼″ Clincher	52″	160	Yes	£42
Clyde	4	82×86	A.	Longuemare	Magneto	To order	J.A.P.	4½ to 1	31″	Rigid	Spring	26″	2¼″ Dunlop	54″	141	To order	£43 10s.
Crypto	3	77×80	M.	Kelecom	To order	Belt	Kelecom	4½ to 1	30″	Rigid	To order	26″	2¼″ Dunlop	51″	160	Yes	£27 10s.
Crypto	3½	80×84	M.	Kelecom	To order	Belt	Kelecom	4½ to 1	30″	Rigid	To order	26″	2¼″ Dunlop	51″	160	Yes	£27 10s.
Crypto	4	85×85	M.	Kelecom	To order	Belt	Kelecom	4½ to 1	30″	Rigid	To order	26″	2¼″ Dunlop	51″	160	Yes	£27 10s.
Dene	3½	80×80	M.	Longuemare	Battery	Belt	Fafnir	4¼ to 1	29″	Rigid	Spring	26″	Clincher	52″	170	Yes	£38
Dene	3½	80×80	M.	Longuemare	Magneto	Chain	Fafnir	Two speeds	29″	Rigid	Spring	26″	Clincher	55″	215	Yes	£52
Dene	3½	80×80	M.	Longuemare	Magneto	Belt	Fafnir	Two speeds	29″	Rigid	Spring	26″	Clincher	50″	180	Yes	£46
Eland	3¼	82×82	M.	Longuemare	To order	Belt	Minerva	To order	30″	To order	To order	26″	2″ Dunlop	51″	145	Yes	£30
Elk (Lincoln)	3	79×79	A.	B. and B.	Battery	Belt	Elk	To order	—	Rigid	Rigid	26″	2″ Palmer	—	130	Yes	£19 10s.
Elf-King, M'd H	3½	80×88	A.	Longuemare	To order	To order	Elf-King	4½ to 1	29″	Rigid	Spring	26″	2¼″ to order	54″	164	Yes	£39 18s.
Elf-King, M'd J	3½	80×88	A	Longuemare	To order	To order	Elf-King	4½ to 1	29″	Rigid	Spring	26″	2¼″ to order	54″	164	Yes	£44 2s.
Elleham	2¾	76×76	A.	Elleham	To order	Belt	Peugeot	5 to 1	26″	Rigid	Rigid	26″	2¼″ to order	56″	140	No	£32
Elleham	3½	85×76	A.	Elleham	To order	Belt	J.A.P.	4 to 1	26″	Rigid	Rigid	26″	2¼″ to order	56″	150	No	£38
Eysink	1¾	62×70	A.	F.N.	Magneto	Belt.	Eysink	—	19½″	Rigid	Spring	26″	2¼″ Engelbert	—	100	Yes	£35
Eysink	3	—	M.	F.N.	Magneto	Belt.	Eysink	—	19½″	Rigid	Spring	26″	2¼″ Engelbert	—	150	Yes	£38 5s.
F.N.	1¾	64×70	A.	F.N.	Magneto	Belt	F.N.	8½ to 1	31″	Rigid	Spring	26″	2″ Engelbert	49″	110	Yes	£35

Inlet Valves—A., Automatic. M., Mechanical.

SINGLE-CYLINDER BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P.	Bore and Stroke. mm.	Inlet Valves.	Name of Carburetter.	Ignition.	Trans-mission.	Name of Engine.	Standard Gear or Gears.	Height of Frame from Ground.	Standard Frame.	Standard Forks.	Diameter of Wheels.	Standard Size and Make of Tyres.	Length of Wheel-base.	Weight Un-laden. lbs.	Pedalling Gear.	Price.
F.N.	2¾	70×80	A.	F.N.	Magneto	Belt	F.N.	5½ to 1	33″	Rigid	Spring	26″	2⅜″ Engelbert	51″	140	Yes	£31 10s.
G.B.	3½	80×85	M.	G.B.	Magneto	Belt	G.B.	5 to 1	30″	Rigid	Spring	26″	2½″ to order	56″	175	Yes	£36 10s.
Griffon	1¾	64×68	A.	To order	Battery	Belt & gear	Zedel	6 to 1	30″	Rigid	To order	26″	2″ to order	60″	80	Yes	£28
Griffon	2¾	75×80	M.	To order	To order	Belt	Zedel	5 to 1	30″	Rigid	To order	26″	2¼″ to order	72″	121	Yes	£30 10s.
Griffon	3½	82×90	M.	To order	To order	Belt	Zedel	4½ to 1	31″	Rigid	To order	26″	2¼″ to order	75″	125	Yes	£32
Juno Featherw't	1½	58×64	A.	Stevens	Battery	Belt	Stevens	—	21″	Rigid	Rigid	26″	1¾″ Clincher	—	60	Yes	£20
Juno	3½	80×80	M.	Fafnir	Magneto	Belt	Fafnir	—	20″	Rigid	Spring	26″	2¼″ Clincher	—	156	Yes	£33 12s.
K.D.	1¾	65×65	A.	K.D.	Battery	Belt	K.D.	—	—	Rigid	Spring	26″	1¾″ Michelin	55″	65	Yes	£29 8s.
K.D.	2	70×70	A.	K.D.	Magneto	Belt	K.D.	—	—	Rigid	Spring	24″	1¾″ Michelin	55″	65	Yes	£33 12s.
Laurin-Klement	4	80×100	A.	L. and K.	Magneto	Belt	L. and K.	—	31″	Rigid	Spring	26″	2⅜″ Contin'l	57″	140	Yes	—
Leader	2½	70×95	A.	B. and B.	Battery	Belt	J.A.P.	5 to 1	—	Rigid	Spring	26″	2″ to order	—	110	Yes	£32
Leader	3½	85×76	M.	J.A.P.	Battery	Belt	J.A.P.	4½ to 1	—	Rigid	Spring	26″	2¼″ to order	—	140	Yes	£38
Leader	4½	85×95	A.	J.A.P.	Battery	Belt	J.A.P.	4 to 1	—	Rigid	Spring	26″	2¼″ to order	—	150	Yes	£40
Leader	3½	80×80	M.	Longuemare	Battery	Belt	Fafnir	4½ to 1	—	Rigid	Spring	26″	2″ to order	—	140	Yes	£32
L.M.C.	3½	81×88	A.	To order	Magneto	Belt	L.M.C.	To order	30″	Rigid	Spring	26″	2¼″ to order	56″	165	Yes	£47 5s.
Lurquin-Coudert	2	67×70	A.	Z.L.	Magneto	Belt	L.C.	5½ to 1	28″	Rigid	Spring	24″	2″ Dunlop	—	85	Yes	£30 9s.
Lurquin-Coudert	3½	80×80	A.	Longuemare	Battery	Belt	L.C.	4½ to 1	30″	Rigid	Rigid	26″	2¼″ Dunlop	—	115	Yes	£30 9s.
Mabon	3½	76×85	A.	Longuemare	Magneto	Belt	Mabon	5 to 1	30″	Rigid	Spring	26″	2¼″ Dunlop	—	150	Yes	£38
Matchless	2½	70×76	A.	Longuemare	Magneto	Belt	J.A.P.	5 to 1	29″	Spring	Spring	26″	2″ Dunlop	53″	130	Yes	£37 16s.
Matchless	3½	85×76	M.	Longuemare	Magneto	Belt	J.A.P.	4 to 1	29″	Spring	Spring	26″	2″ Dunlop	53″	160	Yes	£44 2s.
Matchless	4½	85×95	A.	Longuemare	Magneto	Belt	J.A.P.	4 to 1	29″	Spring	Spring	26″	2″ Dunlop	53″	165	Yes	£45 3s.
Midget Bicar	3	75×80	M.	Fafnir	Battery	Belt	Fafnir	5 to 1	27″	Rigid	Rigid	26″	2″ Clincher	54″	130	No	£29 8s.
Midget Bicar	3½	80×80	M.	Fafnir	To order	Belt	Fafnir	To order	27″	Rigid	Rigid	26″	2″ Clincher	54″	135	No	£31
Minerva	2¾	76×76	M.	G. and A.	To order	Belt	Minerva	4½ to 1	32″	Rigid	To order	26″	2¼″ Contin'l	53″	140	Yes	£29
Minerva	3½	82×82	M.	G. and A.	To order	Belt	Minerva	4½ to 1	32″	Rigid	To order	26″	2¼″ Contin'l	53″	148	Yes	£32
Motosacoche	1¼	62×70	A.	Motosacoche	To order	Belt	Motosac'he	6½ to 1	33″	Rigid	To order	26″	1¾″ Clincher	45½″	80	Yes	£30
New Comet	2¾	75×82	M.	Zedel	Magneto	Belt	Zedel	To order	To order	Rigid	Spring	26″	2¼″ Clincher	To order	120	Yes	£42
New Comet	3½	82×90	M.	Zedel	Magneto	Belt	Zedel	To order	To order	Rigid	Spring	26″	2¼″ Clincher	To order	130	Yes	£45
Noble	2¾	73×76	M.	To order	To order	Belt	Noble	5½ to 1	27″	Rigid	Rigid	26″	2″ to order	48″	140	To order	£29 10s.
Noble	3½	80×98	A.	To order	To order	Belt	Peugeot	4½ to 1	27″	Rigid	Rigid	26″	2″ to order	49″	140	To order	£36
Noble	4½	85×95	A.	To order	To order	Belt	Noble	3 to 1	27″	Rigid	Rigid	26″	2½″ to order	49″	150	No	£38
Noble	5½	95×95	A.	To order	To order	Belt	Noble	2¾ to 1	27″	Rigid	Rigid	26″	2½″ to order	49″	160	No	£39
Nortonette	2	68×70	A.	Z.L.	Magneto	Belt	Z.L.	5½ to 1	28″	Rigid	Spring	26″	Clincher	54″	90	Yes	£33
Norton	3½	82×90	M.	B. and B.	To order	Belt	Norton	4½ to 1	28″	Rigid	Spring	26″	Clincher	58″	150	To order	£36 10s.
N.S.U.	1¼	62×70	A.	N.S.U.	Magneto	Belt	N.S.U.	6 to 1	30″	Rigid	To order	26″	1¾″ to order	—	75	Yes	£34 10s.
N.S.U.	3	75×75	M.	N.S.U.	Magneto	Belt	N.S.U.	5 to 1	32″ & 35″	Rigid	To order	24″ & 26″	2¼″ to order	53″	150	Yes	£37
N.S.U.	3½	80×80	M.	N.S.U.	Magneto	Belt	N.S.U.	5 to 1	32″ & 35″	Rigid	To order	24″ & 26″	2¼″ to order	53″	160	Yes	£40
N.S.U.	3½	82×86	M.	N.S.U.	Magneto	Belt	N.S.U.	4½ to 1	32″ & 35″	Rigid	To order	24″ & 26″	2¼″ to order	53″	170	Yes	£43
Peugeot	1¾	64×68	A.	Peugeot	To order	Belt	Z.L.	8 to 1	29″	Rigid	Spring	26″	1¾″ Lion	45″	78	Yes	£33 10s.
Peugeot	2¾	75×75	A.	Longuemare	To order	Belt	Peugeot	4 to 1	29″	Rigid	Spring	26″	2½″ Lion	48″	136	Yes	£34
Peugeot	3½	80×98	A.	Longuemare	To order	Belt	Peugeot	4 to 1	29″	Rigid	Spring	26″	2½″ Lion	48″	152	Yes	£36 10s.
Phelon & Moore	2¾	76×76	A.	Vapp	To order	Chain	P. & M.	4½ and 8½ to 1	28½″	Rigid	Spring	26″	Clincher	57″	180	No	£47 10s.
Phelon & Moore	3½	82×88	A.	Vapp	To order	Chain	P. & M.	4½ and 8½ to 1	28½″	Rigid	Spring	26″	Clincher	57″	180	No	£47 10s.
Phœnix Cob	3½	80×80	M.	Fafnir	To order	Chain	Fafnir	5 and 9½ to 1	26½″	Rigid	To order	26″	2″ Peter U.	55½″	175	No	£50
Quadrant	3½	81×88	A.	Longuemare	Magneto	Belt	Quadrant	4 to 1	28″	Rigid	Spring	26″	2″ to order	56″	160	Yes	£45
Quadrant	3½	84×88	M.	Longuemare	Magneto	Belt	Quadrant	4 to 1	28″	Rigid	Spring	26″	2″ to order	56″	160	Yes	£47 10s.
Rex Featherw't.	2½	76×70	A.	Rex	Magneto	Belt	Rex	6½ to 1	29″	Rigid	Rigid	26″	2″	48″	90	Yes	£26 5s.
Rex Tourist	3½	82×89	M.	Rex	Magneto	Belt	Rex	4⅞ to 1	29″	Rigid	Spring	26″	2¼″ Clincher	52″	135	Yes	£36 15s.
Rex de Luxe	3½	82×89	M.	Rex	Magneto	Belt	Rex	4⅞ to 1	29″	Sp'g seat	Spring	26″	2¼″ Clincher	54″	—	No	£47 5s.
Rex de Luxe	3½	82×89	M.	Rex	Magneto	Belt	Rex	4½ and 8½ to 1	29″	Sp'g seat	Spring	26″	2¼″ Clincher	54″	—	No	£52 10s.
Roc (Royal)	4	84×86	M.	A.M.A.C.	Magneto	Belt	Roc	4 and 8 to 1	—	Rigid	To order	26″	2¼″ Dunlop	60″	170	No	£50 8s.
Service	4	85×85	M.	Antoine	To order	Belt	Antoine	4½ to 1	33″	Rigid	To order	26″	2¼″ Peter U.	53″	165	Yes	£28

Inlet Valves—A., Automatic. M., Mechanical.

SINGLE-CYLINDER BICYCLES (Continued).

Name of Motor Bicycle.	H.P.	Bore and Stroke. mm.	Inlet Valves.	Name of Carburetter.	Ignition.	Trans-mission.	Name of Engine.	Standard Gear or Gears.	Height of Frame from Ground.	Standard Frame.	Standard Forks.	Diameter of Wheels.	Standard Size and Make of Tyres.	Length of Wheel-base.	Weight Un-laden. lbs.	Pedalling Gear.	Price.
Simplex	3	76×76	M.	—	Magneto	Belt	Fafnir	—	29″	Rigid	To order	24″	2¼″ Peter U.	55″	150	Yes	£40
Simplex	3½	80×80	M.	—	Magneto	Belt	Fafnir	—	32″	Rigid	To order	24″	2¼″ Peter U.	55″	160	Yes	£45
Trafalgar	2¾	75×75	A.	To order	Magneto	Belt	Peugeot	4½ to 1	26″	Rigid	Spring	26″	2¼″ Palmer	50″	124	Yes	£35
Torpedo	1¼	62×70	A.	Longuemare	Magneto	Belt	Torpedo	—	33″	Rigid	Rigid	26″	1¾″ Clincher‖	—	75	Yes	£34 10s.
Torpedo	3	75×75	A.	Longuemare	Magneto	Belt	Torpedo	—	35″ & 38″	Rigid	To order	24″ or 26″	2″ Clincher‖	53″	150	Yes	£37
Torpedo	3½	80×80	A.	Longuemare	Magneto	Belt	Torpedo	—	35″ & 38″	Rigid	To order	24″ or 26″	2″ Clincher‖	53″	160	Yes	£40
Triumph	3½	84×86	M.	Triumph	Magneto	Belt	Triumph	Adjustable	30″	Rigid	Spring	26″	2¼″ Clincher¶	51½″	160	Yes	£48
Vindec Special	3½	80×98	A.	B. and B.	Magneto	Belt	Vindec	Adjustable	30″	Rigid	Spring	26″	2½″ to order	52½″	178	To order	£48 10s.
Vindec Special	3½	80×98	A.	B. and B.	Magneto	Belt	Vindec	Two-speed	30″	Rigid	Spring	26″	2¼″ to order	52½″	196	Yes	£58 10s.
Wolf	1½	58×64	A.	Stevens	Battery	Belt	Stevens	—	22″	Rigid	Rigid	28″	1¾″ Wasp	45″	60	Yes	£19 19s.
Wolf	2½	75×82	A.	Longuemare	Battery	Belt	Wolf	—	20″ or 22″	Rigid	Rigid	26	2¼″ Clincher	56″	140	Yes	£33 12s.
Wolf	3½	82×88	A.	Longuemare	Battery	Belt	Wolf	—	20″ or 22″	Rigid	Rigid	26″	2¼″ Clincher	56″	150	Yes	£35 14s.
Zenette	3½	80×80	M.	Longuemare	To order	Belt	Fafnir	To order	25″	Spring	—	26″	2¼″ Clincher	53″	170	No	£40 19s.
Zenith Bicar	3½	80×80	M.	Longuemare	To order	Belt	Fafnir	To order	27″	Spring	None	26″	2¼″ Clincher	54″	205	No	£45 3s.

TWIN-CYLINDER BICYCLES. V TYPE ENGINES.

Adler	3	66×70	A.	Adler	To order	Belt	Adler	4 to 1	28″	To order	To order	26″	2½″ to order	56″	150	Yes	£37 17s.
Adler	4	70×75	A.	Adler	To order	Belt	Adler	4 to 1	28″	To order	To order	26″	2½″ to order	56″	160	Yes	£45 7s.
Advance	6	76×82	A.	To order	To order	Belt	Advance	Adjustable	26½″	Rigid	Spring	26″	2½″ to order	60″	170	No	£50 8s.
Advance	9	90×90	A.	To order	To order	Belt	Advance	Adjustable	26½″	Rigid	Spring	26″	2½″ to order	60″	185	No	£57 15s.
Antoine	5	77×80	A.	Antoine	To order	Belt	Antoine	To order	22″	Rigid	To order	26″	To order	52″	185	Yes	£33 10s.
Ariel	5	70×95	A.	B. and B.	Battery	Belt	J.A.P.	3⅘ to 1	30″	Rigid	Rigid	26″	2¼″ Liberty	53¾″	175	Yes	£47 5s.
Bat	5	70×95	A.	Longuemare	To order	Belt	J.A.P.	4 to 1	32″	Spring	Spring	26″	2½″ to order	56″	180	No	£52 10s.
Bat	6	76×95	A.	Longuemare	To order	Belt	J.A.P.	4 to 1	32″	Spring	Spring	26″	2½″ to order	56″	190	No	£52 10s.
Bat	9	85×95	A.	Longuemare	To order	Belt	J.A.P.	3 to 1	32″	Spring	Spring	26″	To order	57″	230	No	£57 15s.
Bat	16	120×120	M.	Longuemare	To order	Belt	J.A.P.	1½ to 1	—	Rigid	Rigid	26″	To order	—	—	No	£75
Brough	5	70×76	A.	Longuemare	Magneto	Belt	Brough	4 to 1	30½″	Rigid	Spring	26″	2¼″ Clincher	54″	190	No	£40
Brown	5	82×90	M.	Longuemare	To order	Belt	Brown	3½ to 1	30″	Rigid	To order	26″	2¼″ Palmer	56″	200	Yes	£50
Clyde	6	70×95	A.	Longuemare	Magneto	To order	J.A.P.	4 to 1	31″	Rigid	Spring	26″	2½″ to order	54″	153	To order	£49 10s.
Crypto	5	77×80	A.	Kelecom	To order	Belt	Kelecom	4 to 1	30″	Rigid	To order	26″	2½″ to order	52″	180	Yes	£31 10s.
Eland	5	75×76	A.	Longuemare	To order	To order	Peugeot	To order	30″	To order	To order	26″	2½″ Dunlop	51″	150	To order	£40
G.B.	4½	70×75	M.	Longuemare	Magneto	Belt	Minerva	5 to 1	33″	Rigid	Spring	26″	2½″ to order	56″	195	Yes	£45
G.B.	5½	75×80	A.	To order	Magneto	Belt	Zedel	4½ to 1	33″	Rigid	Spring	26″	2½″ to order	56″	190	Yes	£49
Griffon	3½	67×70	A.	Zedel	To order	Belt	Zedel	4½ to 1	30″	Rigid	To order	26″	2½″ to order	78″	130	Yes	£37
Griffon	5½	75×80	A.	Zedel	To order	Belt	Zedel	4½ to 1	30″	Rigid	To order	26″	2½″ to order	78″	135	Yes	£43
Laurin-Klement	4	70×80	A.	L. and K.	Magneto	Belt	L. and K.	—	31″	Rigid	Spring	22½″	2⅜″ Contin'l	59″	145	Yes	—
Laurin-Klement	5	75×90	A.	L. and K.	Magneto	Belt	L. and K.	—	31″	Rigid	Spring	22½″	2⅜″ Contin'l	59″	167	Yes	—
Leader	6	70×95	A.	J.A.P.	Battery	Belt	J.A.P.	4 to 1	—	Rigid	Spring	26″	2½″ to order	—	160	Yes	£45
Leader	7	76×95	A.	J.A.P.	Battery	Belt	J.A.P.	4 to 1	—	Rigid	Spring	26″	2½″ to order	—	165	Yes	£48
Leader	9	85×95	A.	J.A.P.	Battery	Belt	J.A.P.	3 to 1	—	Rigid	Spring	26″	2½″ to order	—	175	No	£50
Lurquin-Coudert	5	74×80	A.	B. and B.	Battery	Belt	L. and C.	4 to 1	30″	Rigid	Rigid	26″	2½″ Michelin	—	160	No	£45 3s.
Lurquin-Coudert	6	80×80	A.	B. and B.	Battery	Belt	L. and C.	3½ to 1	30″	Rigid	Rigid	26″	2½″ Michelin	—	170	No	£47 5s.
Mabon	6	70×80	A.	Longuemare	Magneto	Belt	Sarolea	4 to 1	30″	Rigid	Spring	26″	2¼″ Dunlop	—	180	Yes	£47
Matchless	3½	65×70	M.	Acmé	Magneto	Belt	Acmé	4½ to 1	29″	Spring	Spring	26″	2″ Dunlop	53″	145	Yes	£47 5s.
Matchless	6	70×95	A.	Longuemare	Magneto	Belt	J.A.P.	4 to 1	29″	Spring	Spring	26″	2½″ Dunlop	54″	160	Yes	£49 7s.
Matchless	9	85×95	A.	Longuemare	Magneto	Belt	J.A.P.	3 to 1	29″	Spring	Spring	26″	2½″ Dunlop	54″	180	Yes	£54 12s
Midget Bicar	5	75×75	A.	Longuemare	To order	Belt	Peugeot	4 to 1	27″	Rigid	Rigid	26″	2″ Clincher	59″	160	No	£37
Minerva	4½	70×75	M.	G.A.	Battery	Belt	Minerva	4 to 1	32″	Rigid	Rigid	26″	2½″ Contin'l	53″	170	Yes	£39
Minerva	7	80×85	M.	G.A.	Battery	Belt	Minerva	3¾ to 1	32″	Rigid	Rigid	26″	2½″ Contin'l	53″	190	Yes	£45
Moto-Reve	2	50×70	A.	Moto-Reve	Magneto	Belt	Moto-Reve	5⅞ to 1	26″	Rigid	Spring	26″	1½″ Contin'l	54″	75	Yes	£36 15s.

Inlet Valves—A., Automatic. M., Mechanical. ¶ Extra heavy. ‖ Dreadnought.

TWIN-CYLINDER BICYCLES. V TYPE ENGINES (*Continued*).

Name of Motor Bicycle.	H.P.	Bore and Stroke. mm.	Inlet Valves.	Name of Carburetter.	Ignition.	Trans-mission.	Name of Engine.	Standard Gear or Gears.	Height of Frame from Ground.	Standard Frame.	Standard Forks.	Diameter of Wheels.	Standard Size and Make of Tyres.	Length of Wheel-base.	Weight Un-laden. lbs.	Pedalling Gear.	Price.
Motosacoche	2¼	—	M.	Motosacoche	Magneto	Belt	Motosa'che	6½ to 1	33″	Rigid	To order	26″	2″ Clincher	—	85	Yes	£38 17s.
New Comet	3½	66×70	A.	Longuemare	Magneto	Belt	Peugeot	To order	To order	Rigid	Spring	26″	2¼″ Clincher	To order	135	Yes	£45
New Comet	5	75×75	A.	Longuemare	Magneto	Belt	Peugeot	To order	To order	Rigid	Spring	26″	2½″ Clincher	To order	145	Yes	£50
New Comet	4	67×70	A.	Zedel	Magneto	Belt	Zedel	To order	To order	Rigid	Spring	26″	2¼″ Clincher	To order	140	Yes	£50
New Comet	5½	75×80	A.	Zedel	Magneto	Belt	Zedel	To order	To order	Rigid	Spring	26″	2½″ Clincher	To order	150	Yes	£55
Noble	5	70×86	A.	To order	To order	Belt	Peugeot	3½ to 1	28″	Rigid	Spring	26″	2½″ to order	50″	160	No	£42 10s.
Noble	8	85×95	A.	To order	To order	Belt	Noble	3 to 1	28″	Rigid	Spring	26″	2½″ to order	52″	180	No	£48 10s.
Noble	10	95×95	A.	To order	To order	Belt	Noble	To order	28″	Rigid	Spring	26″	2½″ to order	52″	180	No	£50
Norton	5	76×80	A.	B. and B.	Magneto	Belt	Norton	4 to 1	29″	Rigid	Spring	26″	Clincher	58″	165	To order	£50 10s.
Nortonette	2	50×70	A.	Moto-Reve	Magneto	Belt	Moto-Reve	6 to 1	28″	Rigid	Spring	26″	1¾″ Clincher	54″	75	Yes	£36 15s.
N.S.U.	4	64×85	A.	N.S.U.	Magneto	Belt	N.S.U.	4 to 1	31″ & 34″	Rigid	To order	24″ & 26″	2¼″ to order	56″	170	Yes	£50
N.S.U.	5½	75×75	A.	N.S.U.	Magneto	Belt	N.S.U.	4 to 1	31″ & 34″	Rigid	To order	24″ & 26″	2½″ to order	56″	180	Yes	£52
N.S.U.	6	75×90	A.	N.S.U.	Magneto	Belt	N.S.U.	3½ to 1	31″ & 34″	Rigid	To order	24″ & 26″	2½″ to order	56″	185	Yes	£54
Peugeot	3½	66×70	A.	Longuemare	To order	Belt	Peugeot	4 to 1	29″	Rigid	Spring	26″	2¼″ Lion	48″	134	Yes	£39 10s.
Peugeot	5	75×75	A.	Longuemare	To order	Belt	Peugeot	4 to 1	29″	Rigid	Spring	26″	2½″ Lion	48″	154	Yes	£42
Peugeot	7	80×98	A.	Longuemare	To order	Belt	Peugeot	4 to 1	29″	Rigid	Rigid	26″	2½″ Lion	48″	152	Yes	£46 10s.
Quadrant	6	81×93	A.	Longuemare	Magneto	Belt	Quadrant	4 to 1	29″	Rigid	Spring	26″	2½″ ——	56″	170	Yes	£52 10s.
Rex Tourist	5	76×80	A.	Rex	Magneto	Belt	Rex	4⅞ to 1	29″	Rigid	Spring	26″	2¼″ Clincher	52″	140	Yes	£42
Rex de Luxe	5	76×80	A.	Rex	Magneto	Belt	Rex	4¼ to 1	29″	Rigid	Spring	26″	2¼″ Clincher	54″	—	No	£52 10s.
Rex Two-speed	5	76×80	A.	Rex	Magneto	Belt	Rex	4¼ and 8½ to 1	29″	Rigid	Spring	26″	2¼″ Clincher	54″	—	No	£57 15s.
Roc (Royal)	5	76×76	A.	Longuemare	Magneto	Belt	Roc	4 and 8 to 1	—	Rigid	To order	26″	2¼″ Dunlop	60″	180	No	£57 15s.
Service	5	77×80	A.	Antoine	To order	Belt	Antoine	4½ to 1	33″	Rigid	To order	26″	2¼″ Peter U.	54″	185	Yes	£33 10s.
Simplex	4½	77×80	M.	To order	Battery	Belt	Antoine	—	32″	Rigid	Rigid	26″	2¼″ to order	52″	185	Yes	£36
Trafalgar	5	75×75	A.	Longuemare	Magneto	Belt	Peugeot	3¼ to 1	26″	Rigid	Spring	26″	2½″ Palmer	52″	175	Yes	£40
Torpedo	4	64×70	A.	Longuemare	Magneto	Belt	Torpedo	—	34″	Rigid	Rigid	24″	2¼″ Clincher‖	56″	170	Yes	£50
Torpedo	5½	75×75	A.	Longuemare	Magneto	Belt	Torpedo	—	34″	Rigid	Rigid	24″	2½″ Clincher‖	56″	180	Yes	£52
Torpedo	6	75×90	A.	Longuemare	Magneto	Belt	Torpedo	—	34″	Rigid	Rigid	24″	2½″ Clincher‖	56″	185	Yes	£54
Vindec, F.	5	75×76	A.	B. and B.	Magneto	Belt	Vindec	Adjustable	30″	Rigid	Spring	26″	2¼″ to order	52½″	186	To order	£53
Vindec, G.	5	75×76	A.	B. and B.	Magneto	Belt	Vindec	Two-speed	30″	Rigid	Spring	26″	2¼″ to order	52½″	204	Yes	£63
VindecLt.Tourist	5	75×76	A.	B. and B.	Magneto	Belt	Vindec	Adjustable	30″	Rigid	Rigid	26″	2¼″ to order	52½″	160	No	£52

OTHER MULTI-CYLINDER BICYCLES.

Douglas	*2¾	60×60	A.	Douglas	Magneto	Belt	Douglas	5½ to 1	32″	Rigid	—	26″	1¾″	46″	85	Yes	£31 10s.
Douglas	†6	60×66	A.	Douglas	Magneto	Belt	Douglas	4 and 7 to 1	30″	Rigid	—	26″	2¼″	57″	170	No	£60
Eysink	‡3½	—	A.	F.N.	Magneto	Gear	Eysink	—	19½″	Rigid	Spring	26″	2¼″	—	160	—	£43 10s.
Fairy	*2½	54×55	A.	Fairy	To order	Belt & chain	Fairy	6½ to 1	22″	Rigid	Rigid	26″	1¾″ Palmer	47″	80	Yes	£28 7s.
Fairy	*4	60×76	A.	Fairy	Magneto	Belt & gear	Fairy	4 and 7½ to 1	20″	Rigid	Rigid	26″	2″ Palmer	55″	120	No	£44 10s.
Fairy	*6	76×89	A.	Fairy	To order	Belt	Fairy	5 to 1	20″	Rigid	Rigid	26″	2½″ Palmer	58″	170	No	£52 10s.
F.N.	§4½	48×57	A.	F.N.	Magneto	Gear	F.N.	6 to 1	33″	Rigid	Spring	26″	2⅜″ Engelbert	55½″	190	Yes	£50

LADIES' BICYCLES.

Advance	3	76×82	A.	B. and B.	Magneto	Belt	Advance	Adjustable	31″	Rigid	Spring	26″	2″	54″	112	Yes	£44 2s.
Matchless	2¾	70×76	A.	Longuemare	Magneto	Belt	J.A.P.	5 to 1	26″	Spring	Spring	26″	2″ Dunlop	52″	125	Yes	£37 16s.
Motosacoche	1	—	M.	Motosacoche	Magneto	Belt	Motosa'che	6½ to 1	33″	Rigid	Rigid	26″	1¾″ Clincher	45½″	80	Yes	£34
New Comet	2¾	75×82	M.	Zedel	Magneto	Belt	Zedel	To order	28″	Rigid	Spring	26″	2¼″ Clincher	To order	125	Yes	£50

Inlet Valves—A., Automatic. M., Mechanical.

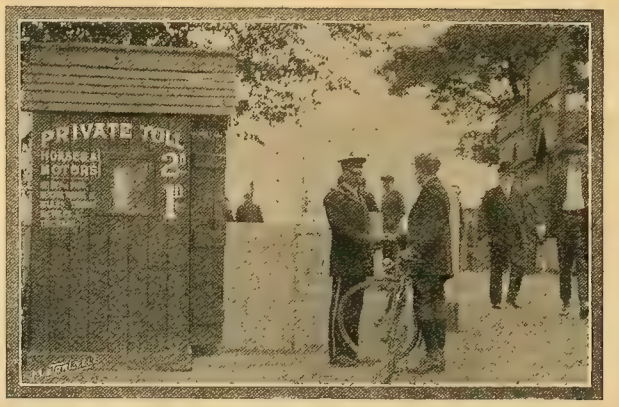
* Horizontal opposed twin. † Four cylinders, V type. ‡ Twin vertical type. § Four-cylinder, vertical type. ‖ Dreadnought.

PASSENGER MOTOR CYCLES. TRICARS.

Name of Tricar.	H.P.	Bore and Stroke. mm.	Inlet Valves.	Name of Carburetter.	Ignition.	Transmission.	Name of Engine.	Standard Gear or Gears.	Height of Frame from Ground.	Rear Frame	Front Frame	Diameter of Wheels.	Standard Size and Make of Tyres.	Length of Wheelbase.	Weight Unladen. lbs.	Price.
**Advance (*D.F.*) ..	6*T*	76×82	A.	B. and B. ..	Battery	To order	Advance	To order	34″	Rigid	—	26″	2½×2″	63″	336	£68 5s.
**Advance (*O.F.*) ...	6*T*	76×82	A.	B. and B. ..	Battery	Chain & gear	Advance	Two speeds	15″	Spring	—	26″	2½×2″	60″	392	£89 5s.
**Advance (*O.F.*) ...	9*T*	90×90	A.	To order ...	Battery	Chain & gear	Advance	Two speeds	14½″	Spring	—	30″	3½″	72″	672	£126
Anglian (*W.C.*)	3¼	74×76	A.	De Dion ...	Battery	Chain	De Dion	5 and 10 to 1	—	Rigid	—	26″	2½×2″ Palmer	60″	300	£60
Bradbury (*W.C.*) ...	4½	82×82	M.	Longuemare	Battery	Chain	Bradbury	Two speeds	—	Spring	—	26×28″	Clincher	—	504	£85
*a*Brough	7*T*	82×100	A.	Longuemare	Battery	Chain	Brough ..	4½, 7, and 11 to 1	31″	Rigid	—	26″	2½″ Clincher	84″	400	£96
Brown	3½	82×90	M.	Longuemare	To order	Chain	Brown ...	5 and 11 to 1	30″	Rigid	—	26″	2¼″ Clincher	—	—	£65
Brown	5*T*	82×90	M.	Longuemare	To order	Chain	Brown ...	4⅛ and 9 to 1	30″	Rigid	—	26″	2¼″ Palmer	—	—	£78
Eland (*W.C.*)	6	90×110	A.	F.N.	To order	Gear	De Dion	5 and 11¼ to 1	—	Spring	—	26×28″	3½×2½″	—	—	£125
Eysink	5	84×90	M.	F.N.	Magneto	Gear	Eysink ..	—	—	Rigid	Spring	26″	2½″ Engelbert ...	—	—	£80
Lagonda	10*T*	90×96	A.	Lagonda ..	Battery	Chain	Lagonda	Three speeds	10″	Spring	Spring	26″	2½″ to order	72″	590	£120
Lurquin-Coudert ...	4½	84×90	A.	F.N.	Battery	Gear	L. and C.	4 and 8 to 1	—	Spring	Spring	26″	2½″ Dunlop	—	550	£90 6s.
Lurquin-Coudert ...	6*T*	80×80	A.	F.N.	Battery	Gear	L. and C.	4 and 8 to 1	—	Spring	Spring	26″	2½″ Dunlop	—	625	£99 15s.
Lurquin-Coudert ...	9*T*	84×90	A.	F.N.	Battery	Gear	L. and C.	4 and 8 to 1	—	Spring	Spring	26″	3×2½″ Dunlop .	—	640	£110 5s.
Mototri Contal (*W.C.*)	4	80×86	A.	Longuemare	To order	Chain	Mototri ..	Two speeds	—	Rigid	Spring	26″	2½″ Michelin	—	484	£62
Noble	5*T*	70×86	A.	F.N.	To order	Gear	Peugeot	4½ and 9 to 1	—	Spring	Spring	26″	2½″ to order	68″	336	£75
Noble	8*T*	85×95	A.	F.N.	To order	Gear	Noble ...	4, 6, and 8 to 1	—	Spring	Spring	26″	3½″ to order	68″	700	£100
Norton	5*T*	76×80	A.	B. and B. ..	Magneto	Chain & belt	Norton ..	5 and 9 to 1	28″	Rigid	—	26″	Clincher	68″	—	£75
N.S.U. (*W.C.*)	6*T*	75×90	A.	N.S.U.	Magneto	Belt	N.S.U. ...	Two speeds	—	—	—	—	2½″	—	—	£87 17s.
Phœnix Trimo (*W.C.*)	5	90×100	M.	Longuemare	To order	Chain	Minerva	5⅛ and 10 to 1	11″	Spring	Spring	26″	2¼×2½″	61″	500	£90
Rex Litette (*W.C.*) ..	6*T*	76×80	A.	Rex	Magneto	Belt	Rex	4¼ and 8½ to 1	32″	Rigid	Spring	26″	2¼″ Clincher	59″	—	£78 15s.
Riley (*W.C.*)	5	86×89	M.	Longuemare	Battery	Chain	Riley ..	5 and 10 to 1	—	Spring	Spring	26″	Clincher	66″	480	£89 5s
Riley (*W.C.*)	6*T*	80×80	M.	Longuemare	Battery	Chain	Riley	4, 7, and 11 to 1	—	Spring	Spring	26″	Clincher	77″	650	£120 15s.
Riley (*W.C.*)	9*T*	86×89	M.	Longuemare	Battery	Chain	Riley	3¾, 6¾, & 10¾ to 1	—	Spring	Spring	26″	Clincher	—	—	£136 10s.
Singer (*W.C.*)	6*T*	80×80	M.	Longuemare	Battery	Chain	Singer ...	4¾, 8½, & 13 to 1	—	Spring	Spring	28″	3″ Dunlop	72″	784	£130
Singer (*W.C.*)	9*T*	86×89	M.	Longuemare	Battery	Chain	Singer ...	4½, 8, & 12 to 1	—	Spring	Spring	28″	3″ Dunlop	72″	784	£145
Wolf	7*T*	82×88	A.	Longuemare	Battery	Chain	Wolf	Change speed	—	Rigid	Spring	26×28″	2½×3″ Clincher..	62″	556	£110
Wolf Motette	5	89×95	A.	Longuemare	Battery	Chain	Stevens ..	Change speed	—	Rigid	Spring	26″	2½″ Clincher	62″	330	£78 15s.
Zenette (*W.C.*)	6*T*	76×95	A.	Longuemare	To order	Chain	J.A.P. ..	Two speeds	—	Spring	Spring	26″	2½″ Clincher	63″	420	£94 10s
Zenith	6*T*	76×95	A.	Longuemare	To order	Chain	J.A.P. ..	Three speeds	—	Spring	Spring	26″	2¼″ Clincher	58″	308	£78 15s

** The Advance tricars can be supplied air-cooled or water-cooled. *a* Vertical cylinders. *T* Twin cylinders. (*W.C.*) Water-cooled. (*D.F.*) Diamond frame. (*O.F.*) Open frame.

Under the heading of "passenger machines" in the above guide, we have only published particulars of complete machines, *i.e.*, tricars. It must not be forgotten, however, that there are also several makers of sidecars who will supply attachments to fit almost any motor bicycle at varying prices. The makers names and addresses will be found, in the majority of cases, in our advertisement columns. In addition, practically all makers of motor bicycles are willing to supply a suitable sidecar to run in conjunction with their particular make of motor bicycle. Motor bicycles and sidecars, however, are seldom sold as complete passenger machines, and it is usually necessary to buy the motor bicycle and the sidecar separately, and for that reason sidecars are not included in our list of passenger motor cycles.



Tollgate at Leyton, E., used as a short cut on to the main Essex Road.

In compiling the Buyers' Guide, it has been our endeavour to make it as complete as we possibly could. Every firm of motor cycle manufacturers known to us has been written to for particulars, but it frequently happens that a small maker or assembler of motor cycles is overlooked. Throughout the country there are a large number of agents who assemble motor cycles under various names, and it is impossible for us to know them all. If any of them have been omitted and they are making machines which embody any special design or ideas, we shall be glad to include them in the Buyers' Guide of 1909 if they will send us their names and addresses to enter in our books. Regarding the weights of the machines, these are as given to us by the makers, but in some cases the weights can only be approximate.

THE London to Edinburgh Run of 1907.

By ARTHUR W. BENTLEY. (Continued from page 96.)

Early Birds.

The world was now beginning to wake up, and here and there we came across some sturdy farm labourer plodding along to his early morning work, wondering, probably, what was bringing so many of us out at so early an hour, when, as a rule, he was accustomed to have the world to himself.

At about 6.50 we were passing along by the Doncaster racecourse, where we saw a string of racehorses out for a spin on the Downs, and a pretty picture they made with the sun shining on their glossy coats and magnificent limbs, and it was with the greatest difficulty that I could refrain from dismounting and watching a few gallops.

In a few minutes we were clear of Doncaster, but were delayed shortly afterwards by a broken belt-fastener; but this caused no anxiety, as we had simply to put our spare belt on, which had already been cut to the exact length and fitted with a detachable belt-fastener.

While replacing the belt about six other competitors caught us up, and as we all seemed anxious to show the paces of our respective machines, the milestones were soon flitting by at very short intervals.

The morning, which started so promisingly, now settled down into a dull, cold, and cheerless day, with every promise of rain in the near future.

In spite of an early breakfast, the pangs of hunger were again beginning to make their presence felt, and after passing through Wentbridge (166), Ferrybridge (171), and Aberford (181), we began to realise with very great pleasure that we were only about eight miles away from our second breakfast—almost near enough, in fact, to smell the hot coffee that was boiling ready for us. "A hungry stomach is a good whip," as the saying is, and in a very short time we had made a big hole in those eight miles.

A short distance before reaching Wetherby we came across one of the competing cars in a ditch by the roadside, but as nobody was damaged, and the owner of the car assured us that he was in no need of assistance, we pushed on, and at 8.20 turned into the yard of the Angel Hotel, Wetherby (188½), about six minutes in advance of schedule time.

A Tip to Future Competitors.

This time we took the precaution of filling with petrol before breakfasting, and by so doing we saved all the rush and bother that ensues when about six people are requiring the services of one man at the same time, as is the case after breakfast.

How we did eat on this run! There is nothing like motoring to stimulate an appetite.

Our eyes were getting exceedingly painful, thanks to our own carelessness, so we obtained some hot water and a sponge from our kind hostess with which to bathe them.

The Fates had again been busy, and a further batch of competitors had been singled out for failure, and we missed several faces we noticed at Newark.

Would it be our turn next? We had now been travelling for about eleven hours, and had nearly covered half the course, so far without any serious stoppages, and with ordinary luck there was absolutely no reason why the history of the next 200 miles should not follow suit. A continuous run of twenty-four hours will find out the slightest weakness in any machine, and, although many motor bicycles, both before and after the trial, cover distances far in excess of 400 miles without trouble, they very frequently fail to do themselves justice when competing in the London-

At Newcastle, the ½d. toll demanded for crossing the bridge stopped all, and caused a lot of fumbling to get at pockets.

The London to Edinburgh Run of 1907.—

Edinburgh trial. I have never yet heard a satisfactory explanation why this should be so.

After breakfast we adjourned to the yard again, and by the time we had carefully looked over our machines to see that all nuts, etc., were well screwed up and that everything was in order it was almost time to be off again. We were due to leave about nine o'clock, and, in spite of the light rain that was falling and the generally cold and cheerless morning that had set in, there were a considerable number of people gathered in front of the hotel to see us start on our eighty-mile run into Newcastle.

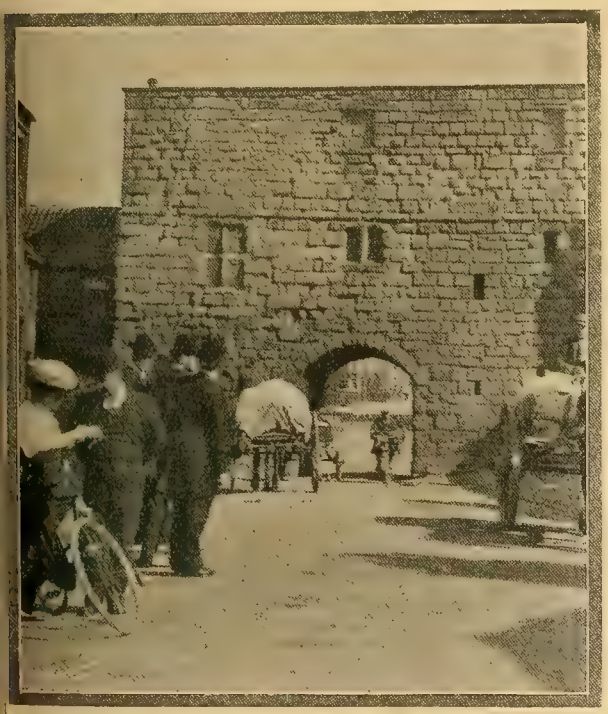
We were soon off, and, speaking for myself, I was off in two senses of the word, as before I had gone many yards I executed an exceedingly graceful side-slip, much to the amusement of the onlookers, luckily without any damage to myself or machine.

On the road to Boroughbridge we encountered a series of hailstorms, which the wind drove dead into our faces, causing us considerable inconvenience and no small amount of pain.

After leaving Boroughbridge (200) and Leeming (216) behind we arrived at Scotch Corner, which was our next checking place, at about 10.50 a.m.

An Abrupt Change in the Scenery.

We were now riding through a tract of country that I have always considered exceedingly dull and depressing; its general bleak outlines, its dull and uninteresting monotony, and even the cold grey-looking houses and the long rows of plain stone cottages all lend themselves to complete the final picture, which is so far from being a pleasing one. Dull and depressing though this country may be, and I think that there are not many who will dispute my description, there are at the same time many points of real interest that cannot fail to attract the attention of even the most casual observer, and whoever rides through this bit of the North Country will carry away with him an impression of this vast coalfield that he will never forget, and he will be able to observe as he passes through the little villages many points about the life of the inhabitants that he would probably never be able to come across in any other way.



Two riders passing under the old Tower at Alnwick.

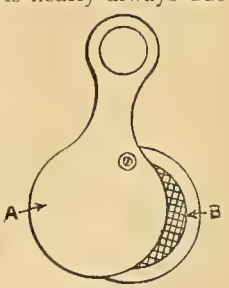
The first glimpse of Scotland. The Border Bridge with Berwick in the background.

The roads at numerous points are crossed by railway lines from collieries, and as they project some distance above the road, we had to slow down or experience the sensations of being bumped off the saddle.

(To be continued.)

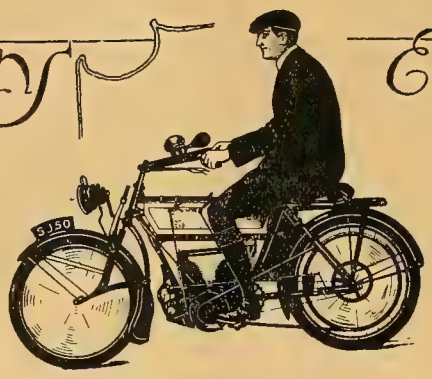
A short time since, a contributor mentioned a mechanical nipple for Bowden wires which did not require any soldering. Several enquiries have reached us for the address of the maker of this mechanical nipple, and we shall be glad to forward them on if the maker will communicate with us.

Motor cyclists who complain of their machines starting with difficulty will find that it is nearly always due to the fact that the suction on the carburetter is not sufficiently strong to allow a sufficiently explosive mixture being drawn into the cylinder. The trouble may be fairly easily remedied on some makes of carburetters by making a shutter on the principle shown in the accompanying sketch. The shutter is cut out of sheet brass, and is fastened to the rim of the main air inlet by means of a small screw and washer. We have seen the idea on several machines lately, where it has given much satisfaction.



A. Movable shutter.
B. Gauze covered air inlet.

Questions & Replies.



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned numbers must be used, the writer to keep a key for reference.

All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Opinion of a Lightweight.

Do you consider the 1¼ h.p. N.S.U. motor bicycle with magneto ignition a good purchase? I require it for short runs of five miles out and back in a very level country, and I weigh close on fourteen stones. Have ridden an Excelsior for five years, but find it very heavy for frequent starting and stopping.—Dr. L.

The machine in question will be a good investment, and should prove quite suitable for the purposes for which you require it.

Plug Points Incandescent.

Referring to the recent articles on overheating of air-cooled engines, I have found that the sparking plug points very often become incandescent and cause pre-ignition. I think a remedy for this (otherwise than changing the plug) would interest a good many.—A.H.R.

There is really no cure except by changing the plug for another one, the points of which do not project so far into the combustion chamber. The trouble has a good deal to do with the position of the plug. If it projects far into the combustion chamber, pre-ignition is more liable to occur.

Magneto Switch and Gear for Sidecar Work.

(1.) I have a 5½ h.p. Rex de Luxe, magneto ignition. Can I fit an ignition cut-out to use in traffic instead of the exhaust valve lifter, and where should the wire be attached to the magneto? (2.) Can I work an electric horn attachment from the magneto, and how? (3.) Can both the switch and electric horn be used with the same magneto? (4.) What gear would you advise for the machine when used with a sidecar? I have a two-speed gear fitted.—P.F.J.

(1.) Yes, get an ordinary type of switch, connect the wire from it to the steel screw above the spring which holds the contact breaker cover in position. When the switch is in the usual "off" position the magneto will be in running order, when it is in the "on" position the magneto will be short circuited, and will consequently be put out of action. (2.) No, it will not work an electric horn, (3) consequently, only the cut-out or switch can be used. (4.) Say 5 and 9 to 1.

Burning and Pitting of Coil Points.

I have a 3 h.p. Clarendon motor bicycle on which I have just tried a special high speed trembler coil. It seems to go much better than it did with my old coil, but I am troubled with the points of the coil burning, and I have to clean them about every fifty miles. I have adjusted the make and break points to the sound of the coil, and have also tried adjusting the coil. The engine starts easily enough, but when the points on the coil get burnt, it misses and backfires. Can you suggest a remedy?—S.N.A.

The points may not be of genuine platinum or iridium, or too small. If you have the screw and blade re-tipped the trouble should cease. Do not adjust the screw any harder than absolutely necessary, as this causes pitting.

Tuning-up a Second-hand Mount.

I have just bought a second-hand 3 h.p. Humber motor bicycle with clutch and chain drive. It goes well on the level and hardly slows down at all on an ordinary hill, but I can turn the flywheel round easily with the starting handle. Ought I to be able to do this? If I place the machine on the stand and put in the clutch and pedal, the clutch slips so that I cannot tell what the compression is like. The clutch does not seem to slip when the engine is driving the cycle. How often does the engine require lubricating? Will one pumpful every twenty-five miles be sufficient? Also, how many miles should the machine cover to the gallon? It is fitted with two ten ampère hour accumulators. How many miles ought each of these to run? By taking hold of the end of the axle of the flywheel and raising it vertically it is possible to lift it a small distance, say about one-tenth of an inch. Does the engine require rebushing?—G.D.M., Cambridge.

Possibly the machine climbs hills well on account of a low gear. You will be able to restore compression by perusing the replies to other querists published in recent issues. Probably the clutch slips on account of it being too small in diameter. If you have much trouble in this respect you had better do away with the clutch altogether. You should lubricate about once every fifteen miles. The engine should run about 90 to 100 miles to the gallon if carefully driven. Accumulators should run about 300 miles each. Yes, it appears that the engine requires rebushing, and you had better have this done at once.

High Gear affecting Hill-climbing.

I have been a rider of a 1907 2¾ h.p. Minerva for the last nine months, and have found it a speedy machine on the level and economical in the consumption of petrol, averaging from 140 to 160 miles per gallon. There is, however, one point about it I should like to improve, if possible, and that is its hill-climbing capabilities. I find it will take a hill of 1 in 15 fairly well, but if the length exceeds 300 or 400 yards, I generally have to help the machine by pedalling. For instance, the hill entering Preston from Blackburn, it will almost mount, but when about fifty or sixty yards from the top I have to start pedalling. The length of this hill is ⅜ths of a mile, and the rise according to contour road book is 150 feet, or a rise of 1 in 13. Similarly the road from Sheffield to Manchester I found a rather stiff one, owing probably to the length of the gradients, and it failed to negotiate the last mile on the peak of the hill, that is, between the 21st and 22nd milestones, though it had a good rest about five miles from the bottom of the hill after riding from Lincoln. It is geared 4¼ to 1, and my weight is ten stones. The pulley is 4½in. in diameter, and diameter of belt rim on back wheel 19in. over top of flanges. I can increase the diameter of the belt rim to 20in., and still have nice clearance between the stays if you think it advisable. What is the smallest size pulley it would be advisable to put on the engine, using a ⅞in. belt?—J.A.T., Reading.

It appears, from what you say in your letter, that the machine is most certainly over-geared. We should recommend a gear of about 5 to 1 if the machine has 26in. wheels. Fitting a 20in. belt rim would, of course, be an advantage. It would not be at all a bad plan to do this and have an adjustable pulley; you would then be able to alter the gear until you found the best ratio for your weight. The smallest size pulley that you could conveniently fit would be 3½in. diameter.

Fixing Valve Lifter to Magneto.

Will you kindly tell me if fixing a Bowden valve-lifter fitting to the top of the magnets would in any way interfere with the proper working of a Bosch magneto? This is the only available spot on which to place the attachment of the cable and wire. At present my spark advance and valve lifter are attached to the same lever, and I find it somewhat inconvenient.—DI 51.

We should not recommend you to attach any screws or wires to the magnets, but as far as we know, provided the magnets are not subjected to any shock, such as a blow from a hammer, or that they are not allowed to be loosened in any way whatever, no actual harm would ensue from fixing the arrangement to them. Surely you can attach Bowden cable to a clip on some part of engine or frame.

Frequent Misfiring.

My machine is a 3 h.p. Quadrant with surface carburetter, and for 650 miles I have not made any adjustment; in fact, it has run like a clock. Now, however, I am troubled with misfiring at speeds above 8-10 m.p.h. The engine will fire regularly about this speed on negotiating a rise, but when running on the level or on down grade, it misfires very badly, and after running for half an hour or so in this fashion, eventually refuses to fire at all, notwithstanding various adjustments of levers. Firing lever, therefore, cannot be advanced much more than about one-fourth its range. Wiring apparently in perfect order, accumulator fully charged, registering 4.1 volts. Petrol quite fresh. I had machine on stand and tried adjusting contacts with engine running, but though I could get the firing lever slightly more advanced in this way, I could not obtain its full range under any circumstances, and on the road even less than on the stand as stated above. During the progress of the experiments on stand I closely observed the make and break, and noticed that frequently no spark appeared there, although firing regularly with ignition retarded, whilst at other times large and brilliant sparks would appear, and at others an ordinary spark would take place. The contact on the bell crank appears to be rather scanty, and the screw will not adjust right up when contacts are in the "break" position, and it occurs to me whether it is possible that the former has worn nearly away and left the ordinary metal to assist in the sparking. Have thoroughly cleaned contacts with petrol, and given slight rubbing with sand paper, but have not filed them. Do you think a hard substance has formed on contacts and requires filing away?—R.J., Surrey.

As far as we can tell from what you state in your letter, it seems that some of the moving parts of the contact breaker have become worn, and this accounts for the misfiring. The only remedy is to carefully examine the parts in question and get replacements from the makers. The spring of the contact maker is the part most likely to require renewal, and the platinum points should not have worn away in so short a distance. Also carefully examine the wiring of the machine and make sure none of the insulation is broken down and causing a short circuit. Tighten all terminals and keep them clean. A spare accumulator should always be carried.

Magneto at Fault.

I should be glad if you could help me out of a magneto difficulty. The magneto is a Simms-Bosch (quite new) and has not been run a hundred miles. Platinum points clean, etc. When I start my machine, which is a 5 h.p. twin Peugeot, it only picks up on one cylinder, and I have to run about twenty yards before the other cylinder starts firing. When running fast both cylinders fire regularly. I have taken out both plugs and turned the pulley round, with the belt off, when I get a good spark at the back cylinder plug, but no spark at all on the front cylinder plug. I have tried changing the plugs, but get the same result. The failure of the machine to start on both cylinders makes it quite impossible to use a sidecar, as with only the back cylinder firing (unless I am starting downhill) the magneto does not run fast enough to produce a spark at the front plug. I have run the magneto on a lathe at high speeds, the spark is good at both high tension terminals, but when the magneto is running slowly only the back high tension terminal sparks. The magneto is chain driven, and the machine is geared 4½ to 1.—P.L.A., Kent.

The trouble seems to be due to the armature cutting the maximum number of lines of force at different points in regard to the front cylinder from those of the back cylinder. This was a common fault with the 1906 D.A. 2.V. Simms-Bosch magneto, but it was remedied in the following year by fitting a staggered armature, which allowed the maximum lines to be broken at relatively the same time in regard to both cylinders. The way of distinguishing between the two types is as follows: The 1906 type has the two high tension terminals between the magnets; the 1907 and 1908 types have one high tension terminal in the centre between the magnets, and the other at the side. Also, by removing the condenser, you can see whether or not the armature is staggered. If, of course, your magneto has not the latest improvements, it cannot be remedied except by fitting a new armature. In any case, it would be as well to remove the condenser by undoing the brass screws on the top of the cover to inspect the armature and see if it is staggered or not. Misfiring may also be caused by the carbon pencils requiring facing, the platinum points cleaning or adjusting. The Bosch Magneto Co., Store Street, Tottenham Court Road, W.C., would improve the magneto for you.

Harry Tate "motoring." The well-known comedian on his new 3½ h.p. Triumph. Will the cost—£1-19-11—per mile, "including refreshments," be exceeded?

CURRENT CHAT

"THE MOTOR CYCLE" BUYERS' GUIDE, 1908.

SPECIAL FEATURES

THE AFFILIATION OF MOTOR CYCLISTS.

Tax on Petrol in Germany.

The German motor cyclist who drives a 2 h.p. motor cycle on an average of three hours a day, pays in petrol tax nearly 70s. a year. A tax of 7.74 marks (some 8s.) is levied on every 100 kilogrammes of petrol imported into Germany, which means about 10d. a kilo.

Profits of the N.S.U. Co.

Germany's biggest motor cycle manufacturers, the Neckarsulmer Fahrradwerke Aktien-Gesellschaft, finished up the trading year 1906-7 with a net profit of £23,026, which enabled the directors to announce a dividend of twelve per cent.

Germany's Foreign Trade in Motor Cycles.

In 1907 Germany imported motor cycles of a collective weight of 24.400 kilos., which included 352 finished machines. Of these machines thirty-three were imported duty free under the heading of "returned goods," forty-one paid a duty of £1 15s. 7d. a cwt. (50.80 kilos.), 144 one of £1 18s. 1½d., and twenty-six one of £5. In spite of these heavy duties Belgium managed to get 120 machines into Germany. From March 1st to Dec. 31st, 1906, Germany took 180 motor cycles, or, assuming the ratio to hold for the twelve months, 240 during the year 1906 under the new tariff. We must point out that a comparison of the actual figures for 1906 and 1907 would be a comparison of imports partly under different customs tariffs, since the "Bülow" tariff, which prescribes higher rates all round, came into force on March 1st, 1906, not at the beginning of the year. It may, however, be assumed that Germany's import trade in motor cycles is in a stagnating condition. Her imports are valued at—we give approximate figures—£7,930.

Germany's Exports.

Turning to the exports, we get quite another picture, the exports in this line reaching 178,400 kilos. Thus, roughly speaking, Germany's imports and exports stand in a tonnage ratio of 1 to 7. This tonnage, valued at £66,900, covered 2,192 finished machines weighing 177,600 kilos., 800 kilos. being returned as "parts." Great Britain headed the list of customers with purchases totalling 39,100 kilos., or nearly twenty-two per cent. of the whole exports. Holland was the next best customer with 34,800 kilos., then came Denmark with 19,900 kilos., and European Russia with 15,700 kilos. As during the first nine months of 1906 Germany's motor cycle exports totalled 130,500 kilos., she would appear to be increasing her home trade.

The Winter Traps.

At Shooter's Hill Road, Blackheath, and the Lewisham Road, traps are being worked on Saturdays and Sundays. Thanks to the friendly warning of the L.C.C. car drivers and conductors, the police bag is small.

Free Garage at the Crystal Palace.

Motor cyclists visiting the Crystal Palace will be interested to hear that the Lansdowne Motor Garage, of Norwood, will garage their machines free. The Palace Co. have no such accommodation; indeed, the lack of garage facilities in the neighbourhood has always been somewhat of a drawback to those who travel down by motor cycle. We feel sure that very many motor cyclists this year will avail themselves of the firm's offer.

An Unusual Guarantee.

With every new machine of his manufacture a South London maker gives a guarantee—that it will climb Cudham!

Seven Motor Cyclists in One Village.

Mr. H. B. Wilkins, of Bourton-on-the-Water, informs us that in his little Gloucestershire village, which has a population of 1,100 souls, there are seven motor cyclists.

Motors in British East Africa.

Mr. C. Sedgwick Evans, of Nairobi, B.E.A., writes that there are at present in Nairobi one large tricar, a small car, and two four-cylinder lorries. He is himself awaiting delivery of the first motor bicycle. There are no fogs, rain, mud, sideslips, or police traps in B.E.A., Mr. Evans adds.

Miss Muriel Hind and her newly-acquired mount, a 5 h.p. Twin-cylinder Rex, on which she accomplished the best hill-climbing performance in the A.C.U. Quarterly Trials last month.

Unauthorised Speed Limit Notices.

Complaints have been made to the Motor Union of the erection of unauthorised speed restriction notices near Chippenham and at Stratford-on-Avon. The Union has taken steps to bring the complaints to the notice of the authorities.

Market Deeping Motor Cyclists.

The hon. secretary of the Lincolnshire Motor Cycle Club (Mr. Wilkinson) writes: "I was much interested in Mr. P. J. Bright's statement as to the number of motor cyclists at Market Deeping. As motor cycling is so strong there, ought not some of those riders to join our club, and so assist in the movement we all have at heart? I should be very pleased to hear from Mr. Bright or other riders in that district."

Auto Cycle Union Annual Dinner.

Colonel H. C L. Holden, R.A., has kindly consented to occupy the chair at the annual dinner to be held at the Hotel Cecil on Saturday, February 15th, at 6.30 for 7 p.m. For the convenience of those provincial members, who wish to attend this dinner and intend to remain in town that night, arrangements have been made for bed, breakfast, and luncheon at an inclusive charge of 10s. 6d. per head. Members who desire to have a bedroom reserved for them on the Saturday night are requested to let the secretary know as early as possible. A good musical programme has been arranged, and the speeches will no doubt be of great interest to members of the club. Tickets for the dinner are 7s. 6d. each, and immediate application for them should be made.

Land's End to John-o'-Groat's Trial.

The Competitions Sub-committee of the A.C.U. hope to issue the preliminary regulations for the above trial to be held in July, very shortly. Any suggestion from those riders who took part in the 1906 trial over this classic route which may tend to add to the success of this year's event will be welcomed by the secretary, and receive the consideration of the committee.

A Jump in the Imports.

217 motor cycles were imported last month of the value of £6,124, as against ninety-two in January, 1907, of the value of £2,574. Including parts, the January imports for 1906, 1907, and 1908, were valued at £4,878, £5,371, and £6,735 respectively.

British Exports.

Unfortunately, the exports have not advanced in proportion to the imports. Sixty-eight complete motor cycles valued at £2,202, and £2,601 worth of parts, constituted the British exports of motor cycles in January. The re-exports of foreign machines were valued at £721.

M.C.C. London to Edinburgh Trial.

The paragraph in our last issue, page 104, respecting the competition for the Schulte Cup, was not exactly correct. Although another cup is being provided for the motor cyclists only in the London to Edinburgh and back run, the Schulte Cup will still be for competition among car owners and motor cyclists. Thus, not only have motor cyclists the opportunity of winning the Schulte Cup under adverse conditions (and should this be the case, the greater glory would there be for the winner), but they have a cup of their own, for which no car driver may compete.

Ripley Roadmenders' Fund.

The dates fixed for the dinners and entertainments to the roadmenders employed along the Ripley Road are: Saturday, February 29th, Thames Ditton; Saturday, March 21st, Cobham; Saturday, April 4th, Ripley. Assistance will be required to provide for the musical part of the entertainment after the dinners, and the secretary will be glad to hear from gentlemen willing to give their services in this direction. The following is a list of the contributions to this fund received up to the present:

	£	s.	d.
S. F. Edge	1	1	0
N. B. Illingworth ...	0	4	6
J. W. Stocks	1	1	0
Kent Automobile Club ...	1	1	0
Miss M. Hind	0	5	0
S. G. Longworth	0	5	0
J. H. Hall	0	10	6
Collected at White Lion, Cobham	1	16	0
Guildford C. and M.C. ...	0	10	6

A considerable amount is still required to enable as many dinners as possible to be provided as in former years. Motorists should send donations to the secretary, Auto Cycle Union, 18, Down Street, Piccadilly, W.

M.U. Touring Facilities.

The Touring Department of the Motor Union is about to issue a ticket which will frank a motor bicycle into France and Belgium, or a motor cycle of any kind into Switzerland and Italy. No deposit or triptych is required. No formalities beyond the mere exhibition of the ticket are necessary in Belgium or Switzerland, while in France and Italy all that is required is the taking out of a riding license, which exempts its holder from paying the cycle tax for a period of three months. A small fee of sixty centimes in France and 1.25 lire in Italy is payable for this permit, which is the same as issued to ordinary cyclists.

New Identification Letters for London.

First A, then LC, and afterwards LN, London's new identification letters will be LB. The number of motor cycles and cars registered with the L.C.C. alone since the Motor Act of 1903 came into force is approaching 30,000.

Manchester Motor Car Show.

Specimens of the following makes of motor bicycles will be exhibited at the Manchester Show, Belle Vue, from 21st to 29th inst. inclusive: Rex, Roc, Peugeot, Minerva, Quadrant, Brown, Bradbury, N.S.U., Midget Bicar, Wolf, etc. The tricars will include Phœnix, National, Rex Litette, and J.A.P. There will also be full representation of the above on the trial track within the grounds, and ample facilities thus afforded prospective buyers of testing the machines before deciding.

Collision with a Bullock.

A case was heard at Redhill on Thursday, in which a motor cyclist, Mr. Gerald Motion, sued Mr. Ralph Clutton for £1 9s. 6d. damages to his motor cycle. It appears that on November 9th last he was returning from Horley between 6 and 7 o'clock in the evening, when he ran into a cloud of mist and suddenly found himself in collision with one of three bullocks belonging to the defendant. His lamp and machine were damaged. Defendant said that the beasts were kept in a field, but some evil disposed person having opened the gate, they got out. The Judge held that plaintiff was entitled to recover, as it was admitted the bullocks strayed on to the road, and there was not sufficient evidence to prove that the field gates had been properly fastened. Judgment was given for the plaintiff with costs.

Reported Caddish Action.

A Carluke motor cyclist was proceeding along the Stirling and Carlisle Road, near Newmains, in the dark of the early morning on the 1st inst., when he saw a horse suddenly rear up in front of him. It proved to be a horse and cart without a light. The motor cyclist was knocked down, although not hurt, but to make matters worse his machine caught fire. The driver of the cart is reported to have acted in a very caddish manner by driving off without offering assistance.

Exhibition of Motor Cycles.

Templeton Bros., 535, Sauchiehall Street, Glasgow, will hold an exhibition of motor cycles from the 15th to the 22nd inst.

FUTURE EVENTS.

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Feb. 13—Cardiff Motor Club Annual Dinner.
" 15—A.C.U. Fifth Annual Dinner, Hotel Cecil, Strand, 6-30 p.m.
" 15—A.C.U. Council Meeting.
" 18—Motor Cycling Club Bohemian Concert.
" 21-29—Manchester Motor Car Show, Belle Vue, Manchester.
Mar. 21-28—Cordingley's Motor Show, Agricultural Hall.
" 28—M.C.C. Opening Week-end Run to Brighton.
April 18-20—Brooklands Motor Races.
" ——A.C.U. Quarterly Trial.
May 9—Brooklands Motor Races.
" ——A.C.U. Annual Hill Climb at Haslemere.
June 5-6-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition and special motor bicycle cup.
" ——A.C.U. 24 Hours Ride.

CLUB NEWS.

St. Albans and District M.C.C.

The first annual dinner of this club will be held on Thursday, the 20th inst., at the George Hotel, St. Albans. Tickets can be obtained from the hon. secretary, Mr. Geo. Bush, 2, Liverpool Road, St. Albans, Herts. All motor cyclists in the district are invited.

Chesterfield and District M.C.

A new club has been formed in Chesterfield as above. The chief aim of the club is to promote sociability and to bring motorists in the district into closer touch with one another. Communications on all club matters should be addressed to the hon. secretary at headquarters, the Hotel Portland, Chesterfield.

Southend and District M.C.

At the annual general meeting of the above club, J. B. Carruthers, A.C.A., in the chair, it was decided to increase the annual subscriptions to £1 1s. per annum for car members and 15s. per annum for motor cyclists. At present the number of members is seventy-one, about half being motor cyclists. The club has decided to support the Motor Union solely, and has cancelled its former affiliation to the Auto Cycle Union.

Walthamstow M.C.

The second annual general meeting of the above club was held at headquarters last week. Satisfaction was expressed at the state of the balance-sheet, which showed a substantial balance in hand.

The meeting expressed its appreciation of the services of the officers during the past year, and proceeded to arrange the 1908 programme, which will include a 100 miles reliability trial for a cup value five guineas, to be called the Walthamstow Motor Club Annual Dinner Cup.

Leeds M.C.C.

Mr. J. R. Kelly presided at the annual meeting of this club in the absence of the president, Dr. Taylor. The report shows that five minor competitions have been held during 1907, also two hill-climbs, a reliability trial, Leeds to Edinburgh and back run, Leeds to London and back run, and a speed trial, for which the N.S.U. shield was given. As a token of their appreciation of the services of the retiring secretary, Mr. F. O. Langton, the members have decided to present him with an illuminated address. Mr. H. S. Atkinson, 72, Avenue Hill, Harehills Lane, was elected honorary secretary.

Dublin and District M.C.C.

The opening general meeting of the above club took place at the Waverley Hotel, Sackville Street, Dublin, on the 30th ult., the secretary, Mr. M. J. Chambers, in the chair. A general discussion took place, which included in the programme for 1908 the affiliation question and several other important items. The club being largely a social one, it was decided to hold runs on every available Saturday, and three-day tours when Bank Holidays allowed. It was also arranged to hold competitions, and these will include a reliability trial, hill-climbs, speed and consumption trials. In all competitions, except the reliability trial, it was decided to have an open class at an increased entrance fee for non-members to participate in. It was decided to leave the matter of affiliation over and call another general meeting early in March to definitely decide on the matter. It was resolved to have a club badge and that *The Motor Cycle* be the official journal of the club. Full particulars regarding membership may be had from the secretary, 15, Edenvale Road, Ranelagh, Co. Dublin.

Lincolnshire M.C.C.

The General Committee of the Lincolnshire M.C.C. has decided to continue the affiliation with the Auto Cycle Union, as it is felt that the A.C.U., having carried out the promise of its chairman, Mr. R. Todd, and put itself in line, the position of all motor cyclists would in the future be what has been desired so long. Votes of thanks were passed to Messrs. C. Nelson, J. A. Mettham, and the hon. secretary for their services in connection with the Colsterworth speed limit enquiry. Arrangements for the new centres at Louth (Mr. Clarke attended) and Scunthorpe were completed, the Louth meeting to be March 2nd, Stamford also in March.

It was decided to have the annual hill-climb on Easter Monday, near Lincoln, probably at Waddington. The reliability trial will this year be a little over 140 miles, taking in Lincoln, Sleaford, Bourne, Spalding, and the direct road to Grimsby, and across to Brigg and Lincoln. This will enable all members to start from near their home.

Liverpool M.C.

At the request of the committee of the above club, the Bosch Magneto Co. have kindly consented for their technical manager, Mr. Bennett, to give a lecture on "Magnetos" at the headquarters, St. George's Restaurant, Liverpool, on Monday, February 17th, at 8 p.m. In addition to the members of the club, all motorists of Liverpool and district are invited.

North-west London M.C.C.

The annual general meeting of this club was held at the Windmill Hotel, Cricklewood, on Friday last. Mr. A. S. Phillips was elected to the chair. The hon. sec. presented the annual report of the club, the adoption of which was carried unanimously. The balance-sheet was next presented showing a substantial balance in hand, which, after discussion was unanimously adopted.

A very long discussion took place with regard to the new standard affiliation agreement with the Auto Cycle Union which was before the meeting for signature. Mr. J. G. Blundell proposed, and Mr. R. G. Booth seconded, that the agreement be signed, which was accordingly done.

A New Centre of the Lincolnshire M.C.C.

There was a very good attendance of motor cyclists at a meeting held at the Lord Roberts Hotel, Scunthorpe, on Saturday last, Mr. W. J. Brooke in the chair. The business was to decide whether to form a local motor cycling club or to form a centre of the Lincolnshire M.C.C. The Chairman said they had considered they would be much better with a large and flourishing club such as the Lincolnshire M.C.C. Mr. Wilkinson, the hon. secretary of the Lincolnshire M.C.C., attended, and explained how the centres had worked in agreement with the head association. It was unanimously decided to form a centre, and Mr. Brooke was elected chairman and Mr. Mears, 1, Cliff Gardens, Frodingham, hon. secretary, with a committee of ten.

The Motor Cycling Club.

The Motor Cycling Club is holding a Bohemian concert on Tuesday evening, February 18th, at the Tudor Hotel, Oxford Street. Part of the entertainment will consist of a lantern display by Mr. J. Van Hooydonk, illustrating club life and other motoring subjects. Ladies are especially invited to this concert. No charge will be made for admission, and tickets can be obtained on application to Dr. C. B. Moss-Blundell, 703, Lea Bridge Road, Leyton, Essex.

The following is the programme of the club's chief fixtures for 1908: March 28th and 29th—Opening week-end run to Brighton, followed by dinner and social evening; meet March 28th at Purley Corner, 3 p.m. sharp. April 16th to 20th—Easter tour. May 2nd—Members' hill-climb. May 16th—Albert Brown 70 guineas Challenge Cup for cars. June 5th and 6th—London to Edinburgh twenty-four hours run. June 8th—Return from Edinburgh for Schulte Cup competition and special cup for motor bicycles only. June 27th—Inter-team trials for *The Motor Cycle* 50 guineas Challenge Cup. July 11th—Motor Cycling Club Cup for cars. July 25th—Petrol consumption tests. August 3rd and 4th—London to Land's End and back. (motor bicycles only), for Chas. Jarrott Cup.

The long-distance trial for the Chas. Jarrott Cup will take place on August 3rd and 4th. This cup is for motor bicycles only, and will be won outright, and the course will be from London to Land's End and back. The start will probably take place from Hyde Park Corner at three or four o'clock in the morning of August 3rd, Land's End to be reached by the same evning, the return journey to be commenced early the following morning.

The South British Trading Co., Ltd., 13-15, Wilson Street, Finsbury, E.C., have just issued a booklet describing the Vindec Special two-speed geared hub. The demand has become so insistent that plans have now been made to supply it regularly on all Vindec Special motor cycles when ordered.

The Triumph Cycle Co., Ltd., have requested us to mention that the tins of oil which have been supplied with some of the 1908 machines up to February 5th have by an error been filled with air-cooled instead of water-cooled or motor car oils. Air-cooled oil being very thick is inclined to gum up the piston, cylinder, and flywheels in cold weather, and it would be advisable to discontinue the use of same until the summer months, and also to clean out the crank chamber.

Motor Cycle Tyres and Accessories.

Summary of a Paper read by Mr. H. G. Cove before members of the Auto Cycle Union, at 118, Piccadilly, February 7th.

IN introducing his paper, Mr. Cove very rightly pointed to the fact that the majority of motor cycles on the road are greatly undertyred, and the same fault applies to cars, due to the fact, as mentioned by Mr. Cove, that the maker lists a standard pattern machine, fitted, in the majority of cases, with small tyres, or a size which he thinks will sell the machine, and if the rider happens to be particular, and insists upon larger tyres, then he has to pay extra for them. Mr. Cove said that, in the early days, he rode a 2 h.p. motor bicycle with 2in. tyres. Following that, a 2¾ h.p. motor bicycle with 2½in. tyres, and found the latter a great improvement, and the result of his experience was that they were no more likely to pick up a nail, owing to the greater surface exposed to the road, than smaller tyres. Sections and samples of various tyres were then handed round to the members, and their chief characteristics pointed out. The Palmer motor cycle tyres were described, both the ordinary and Palmer cord patterns, the latter being more particularly used for high-powered machines. The lecturer explained that to be thoroughly satisfactory Palmer tyres must be pumped hard, otherwise they are inclined to roll, but if inflated to the proper pressure they were as fast, if not faster, and more durable, in his opinion, than any other tyres.

Of the Continental make of motor cycle tyres, the Modèle de Course was stated to be the best for all-round work. The tread is very thick and the cover made to withstand hard work. Of the Clincher tyres the Dreadnought was the one recommended as the best, the lecturer pointing out that the tread might be made a little thicker and the corrugations more acute. The Moseley, Mr. Cove said, appeared to be rather light in weight, beautifully proportioned, but hardly suitable for a high powered motor bicycle. The Peter-Union non-skidding tyres were highly commended for their non-slipping properties on greasy roads, although taking more h.p. to drive them. The puncture-proof bands made by the same firm were stated to be effective against punctures and to add liveliness to the tyre; but, in the lecturer's opinion, the band would not stop a really healthy nail if it got through the outer cover and was long enough to finish its work. Brooks's chrome leather non-skidding bands also came in for comment, and those riders who are afraid of grease, and have plenty of engine power, were recommended to try one on the back wheel.

The Inflation of Tyres.

We are pleased to confirm Mr. Cove's good opinion of the Goodrich all-rubber non-skid, which was first brought into prominence by Mr. T. K. Hastings, who used them in the Auto Cycle Club Six Days' Trials. Particular attention was called to the big flap on one side of the cover, which practically prevents any chance of nipping the inner tube. Sections of a similar tyre made by the Hanover Rubber Co., and called the Sharmock-Excelsior, were also handed to the members. The excellent tyres of the Dunlop Tyre Co. were mentioned, and the lecturer told the members that he had ridden Dunlop tyres thousands of miles, and although he found them excellent, he preferred a tyre the tread of which had more acute ribs or prominent rubber studs, as he had found that a tyre of this construction gave a better grip of the road. Riders of motor cycles were recommended to pump their tyres hard, particularly the front wheel tyre, which many riders left partially deflated, in order to decrease the handle-bar vibration. This is done at the expense of the tyre, which is more prone to side-slip than if pumped hard. The question of interchangeability of rims was touched upon, and we feel sure that all our readers will agree with Mr. Cove when he said that it is a pity that makers of motor cycle tyres do not study the rider when designing their goods, enabling different makes of tyres to be interchangeable. Butt-ended and detachable air tubes also came in for their quota of praise and condemnation. Detachable tubes were especially recommended as a useful invention and of great service to the motor cyclist. Butt-ended tubes were described as useful, but, in the lecturer's opinion, they slowed the tyre. The butt-ends prevent the air circulating round the tube, and this, with the lump caused by the conjunction of the two ends, sets up a dragging motion and consequent reduction of speed; they are also very liable to burst at the butt.

The burning question of leather *v.* canvas and rubber belts was fully dealt with in the paper. For those who prefer leather to rubber belts the lecturer found that the best dressing was Russian tallow and engine oil. Take a piece of tallow about the size of a hen's egg, place it in a saucer, open the drain tap of the crankcase, and about half fill the saucer with the waste oil. Mix it into a paste, and then rub it into the belt. The next interesting item was a very good hint with regard to the canvas and rubber belts, which had been sent to the lecturer by the maker of the Stanley-Dermatine belt. His advice is that when the belt is taken off it should be replaced to run in the same direction, as if the pull comes in the reverse direction the strain is likely to draw back the canvas, and, as a result, the rubber on the top of the belt cracks. The wearing parts of the fasteners for both kinds of belts should be occasionally lubricated with thick oil, but the rubber belt itself should never be oiled. The advent of the adjustable pulley had created a demand for an adjustable belt fastener, and two fasteners were shown which have just been placed on the market, one the Stanley, in which the hook is detachable, and can be used in conjunction with an adjustable pulley to alter the gear ratio from 4 to 4½ to 1, and the other the Matchless, in which the link is placed in the required slot according to the length of belt desired.

Lamps.

Of the two types of acetylene lamps—those self-contained and those with separate generators—the lecturer plumped for the combined type. He had had experience with separate generator lamps, but had not had much success with them. He now uses Lucas Acetyphote lamps, and for long-distance rides rigs up three. He lights two, and when one shows signs of failing turns on the spare. The attachment of the separate generator to the machine has always been a more or less difficult problem, and the tip given by our contributor "Ixion" some few weeks ago was stated to be the correct one, viz., to extend the clip that holds the petrol and oil tank to the frame to just beyond the edge of the tank, and then turn it up at right angles and fix upon it the generator. There it is out of the way in case of a fall, convenient to run the tube from to the lamp, and easy to regulate the feed of the water whilst riding.

Other Accessories.

Horns, stands, carriers, footrests, saddles, handle-grips, bags, and petrol filters were among the other accessories dealt with. In connection with saddles, Mr. Cove mentioned an old tip which often escapes the attention of motor cyclists, and that is when once you get a saddle which just suits you hold on to it as long as it is fit to sit on, and then part with it with regret. Ask a hunting man if he buys a new saddle each year, and see what he will tell you. For the transport of tools, two small bags were recommended in place of one large one. The tool roll should be attached to the back of the saddle and resting on the carrier, and the other carried on the handle-bar behind the lamp bracket, and containing all the spare parts. Petrol filters were highly commended as a step in the right direction. Mr. Cove mentioned that he fitted one on his machine two years ago, and it has prevented a large amount of dirt from getting into the carburetter.

Clothing.

Flannel underclothes were recommended as the best for wearing next to the skin. Linen or cotton should be avoided. For wearing over an ordinary tweed suit to protect him from rain, dust, and wind, the lecturer said he had tried ordinary mackintosh coats and leggings, but had discarded them because of the unpleasant smell and the unhealthiness of ordinary mackintosh garments. He preferred a coat and overalls made of Gabardine. Stout boots were recommended, as they kept the feet warm and dry. In regard to hand covering, gloves of stout leather were recommended without separate compartments for the fingers. Gauntlets were condemned for the simple reason that the rain runs down one's arms into them. Riding without gloves should never be undertaken, and Mr. Cove explained that he once rode all night without gloves, and afterwards experienced an attack of gout which lasted nearly a month.

Motor Cycle Tyres and Accessories.—

THE DISCUSSION.

Mr. W. H. Wells said he thought Mr. Cove had stated the question very carefully. In the first place he had spoken about many machines being under-tyred. All would appreciate the difficulty manufacturers have on account of the great variation in the sizes of rims. Manufacturers try to obtain a standard rim which will accommodate as many tyres of standard size as possible. At the present time there were four makes of tyres which would fit what the manufacturers called the standard rim. These were the Clincher A1, the Clincher Dreadnought, the Dunlop, and the Palmer, which are all now made 2¼in. wide. The Peter Union could be forced on to this rim, as also could the Moseley, and a new tyre shortly to be introduced by the Goodrich Co. The manager of the latter company had asked him what he considered the standard rim, and he had sent him one which would take all the tyres just mentioned, and this had been sent to the manufactory in America. With regard to the speed on large as compared with small tyres he (Mr. Wells) differed a little from Mr. Cove. A large tyre gave more comfort in riding, but if a 2in. tyre was used the speed was faster. If a man goes in for speed, as in racing, he does not consider comfort, and in touring he does not want speed, so he may use a larger tyre. He knew a machine fitted with 2in. tyres that was ten seconds faster in a mile than one fitted with 2¼in. tyres. The same fact prevailed in regard to the push bicycle. They always had 1⅛in. tyres for racing machines and 1½in. for touring. Small tyres were certainly faster. As to security bolts his experience was that if he had to take a tyre off and make a quick repair he would rather be without them.

Rubber Studded Covers.

The Goodrich tyre had introduced something which had been in vogue in America for years; it was a very large overlapping edge to the cover, yet allowing easy insertion of a detacher. It was very simple indeed, and very good; he recommended the manufacturers of English tyres to give their attention to this. He thought the makers of the Goodrich tyres would very soon be making them very much heavier on the tread, and 2½in. wide. For a real good resilient tyre he thought the Dreadnought was best; it measured 2⅝in. wide, and fitted an ordinary 2¼in. rim. It was strong and durable, and had plenty of rubber on the tread; when fitted with a non-skid band you had in it an ideal thing. He found that the studs on rubber-studded bands lasted as long as two bands with metal studs. The metal studs seemed to rasp on the road, and when running on cobble stones, tramlines, and asphalt they were very liable to cause side-slip. Personally, he used, since the six days' trial of last year, Goodrich's non-skid bands vulcanised to a Dunlop cover, and had not had a puncture yet. For long runs, such as London to Edinburgh, where you do not want to be bothered with punctures, a Peter Union non-skid tyre is a very good thing, and really deserving of credit. The Hanover Rubber Co. had also brought out a rubber-studded cover, which looked very good. He did not agree with Mr. Cove about having tyres pumped up hard to prevent side-slip. On many occasions when he had ridden home through grease, having started out in dry weather, in order to avoid side-slip he had let out a little of the air from the tubes. In regard to butt-ended tubes, he disapproved of them absolutely. The action of the tyre revolving caused the air to circulate in the tube, and every time it came round to the butted end the air was stopped, and distended the tube at that spot and gave it a tendency to burst there. The best detachable tube was one which allowed a continuous circulation of air through the tube. They were a little trouble sometimes, but if a 2in. tube was used in an ordinary 2¼in. cover it would stand all right.

On the question of belts, Mr. Wells said there was a time when he used leather belts; that was when there was nothing else. Now he used a rubber belt, and nothing would now induce him to use a leather one. He was able to keep his hands and his gloves clean. The best leather belt he was never able to ride more than a hundred miles without cleaning it. With regard to adjustable pulleys and tension fasteners, he found that lowering the gear, say from four to one to five to one, practically made no difference in the tension on the belt.

On the subject of lamps, he was strongly in favour of a separate generator, and the proper place, he considered, for the generator was at the side of the tank. The most expensive lamps were not always the best; he mentioned several at about 18s. Many lamps were beautifully made, but were too heavy. The matter of saddles was an important one, and he advised motor cyclists when they got one that fitted them to stick to it. He had found Middlemore's saddle an easy riding one. The question of toolbags required attention. Personally, he found that what is known as the roller type, fastened on the back of the saddle, was a splendid auxiliary. It was easily accessible, and kept the tools in order for readily using them. Petrol filters were good things, but it should be seen that there was a gauze between the petrol pipe and the carburetter.

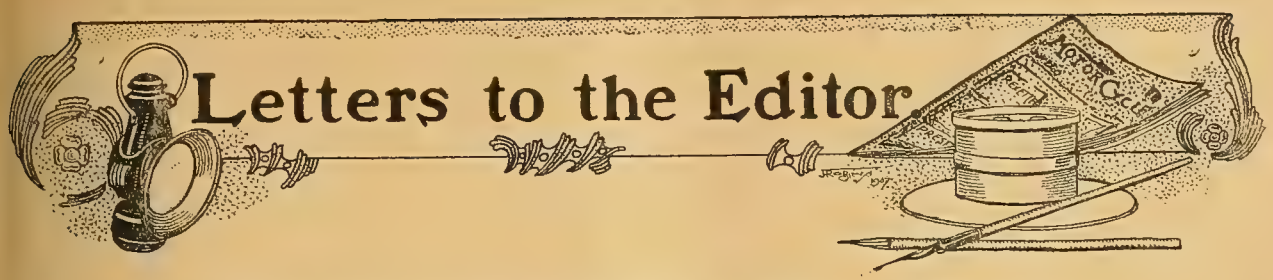
The clothing of the motor cyclist was better studied now than it used to be. Leather clothing had long since passed out of use. He thought nothing was more disreputable-looking than a man in leather clothes, greasy and black. For the past three years he had, when out motor cycling, worn a good strong waterproof coat. Ready-made things he had never found to stand more than one or two runs. He had his overalls made so as to come right up to protect his abdomen. His boots were extra thick in the soles, as they made splendid brakes, and if you had to get off and stand about in the mud and rain and cold they were warmer than thin boots. A washable collar of indiarubber was a good thing, and cost very little (only a few pence), and looked neat round the neck. Anyone using a sidecar in connection with a motor cycle would find that the Whittle belt will outwear anything else that is made. He mentioned that because he saw one lying on the table in front of him, and it had not been referred to in the paper. It was really a splendid belt, and the dirt never affected it; it never stretched after the first stretch was taken out of it.

Sizes of Tyres and Side-slip.

Mr. E. M. P. Boileau expressed his great appreciation of the paper; it had been specially interesting to him. In regard to what Mr. Cove had said about large tyres preventing side-slips his own experience had been to the contrary, although an under-tyred machine meant an over-tired rider at the end of the day's journey. He had a severe experience of a Peter Union tyre in the Isle of Man during the Tourist Trophy Race. He had to ride on one of the worst roads, on one of the worst of days, when the rain was pouring in torrents, and the roads were simply abominable, and the tyres held up all the time under the worst possible road conditions. He had noticed that tyres for motor bicycles had improved greatly during the last year or two. The treads used to be very thin; now one gets really substantial tyres. Mr. Cove had stated that Peter Union tyres needed a ¼ h.p. to drive them. That was more than a good many could afford. They were much indebted to Mr. Cove for mentioning the various sizes of rims, and also to Mr. Wells for telling them that there is a certain sized rim which will fit several different makes of tyres. With all due deference to Mr. Cove, he thought there was one thing he might have mentioned, but which was omitted from his paper, and that was the importance of attending to tyres habitually, as soon as they showed signs of wear to go over them carefully, and pick out all bits of flint and stone, tacks and nails, plugging up all cuts and stopping holes, and so forth. The life of the tyres would be lengthened. The question of lamps was then discussed minutely by Mr. Boileau, who criticised the construction of some of those now on the market. Clothing, too, was criticised. All agreed as to the unsightliness of leather. He recommended that it should be worn inside rather than outside. He had seen most excellent leather clothing for wearing over the under garments. These would be very good for such terribly cold weather as we had before Christmas last. Another article he had noticed was a rather smart looking detachable lining of leather to wear under ordinary garments where the wind caught the rider. Gloves, such as used by hedgers, were very serviceable to motor cycle riders; they should be lined with lamb's wool. Sleeps, of Oxford Street, made some very serviceable gloves.

(To be continued.)

In last week's issue a letter appeared on page 109, signed by H. and A. Dufaux, Ltd., stating that they had frequently known riders to have the same accumulator in constant use without recharging. In this sentence the words "for six months" were inadvertently omitted.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A.C.U. Reform.

[3102.]—In reading letter No. 3010 from "Constant Read," I have not laughed so much for a long time. To think what we should do if that rule No. 8 came into force. How we could fly about; no fines to pay. But, there, that will never be done. Also the following: Nos. 4, 5, and 12.

I do, however, think a fee of 2s. 6d. and, say, 1s. for the badge, a year, would make it much more reasonable. I do not belong to any club, not being able to afford it, but I would be willing to join the A.C.U., and I know a good many more who would do likewise. There is enough to pay already, what with Inland Revenue tax and driving license.

TREVOR.

Winter Clothing.

[3103.]—"Ixion's" list of necessaries for winter riding is truly appalling. With "snow shoes," rolls of cloth round the ears or under the cap, a cholera belt, several pairs of stockings and gloves, and wool-lined clothes, one can imagine the poor unfortunate motorist trying to start a refractory engine. He would certainly have no difficulty in "starting warm."

Personally, I find a wool sweater under a thick reefer coat and a good pair of warm gloves all the extra clothing necessary, although I have often been out when my carburetter has been coated with hoar frost.

GAFFER.

Colonial Requirements.

[3104.]—In answer to the sweeping statement made by "Another Disappointed Colonial," may I suggest to him the Bat spring frame accompanied by a Jap engine. I have had experience with various foreign machines, but I find them all, though they are hard to beat, less reliable than the Bat-Jap combination. The Bat spring frame is splendid. I believe that no jar would be felt by the rider who climbed a flight of steps on this machine, though, of course, the engine would suffer.

I had occasion last summer to ride across a railway crossing in Cornwall which was being repaired. The wood paving, which is generally flush with rails on such places, was up. I was going fairly fast, and my Bat took me right over a double set of rails. I was severely shaken, and fell the other side; but I feel quite sure that had it been any of my former machines I was then riding I should not be here now to advise my friend from Victoria that he is making a great mistake in condemning all English-built machines.

J. P. STOKES.

Another Disappointed Colonial.

[3105.]—It is a pity to learn that in the colony of Victoria English machines are outnumbered by the various Continental makes enumerated. A four-cylinder Continental make is held up by "Colonial Rider" as an ideal from which English workmanship falls very far short. He asks: "What English machines can compare with this in design and workmanship?" The comparison, I think, would all be in favour of the English machine in design and workmanship, but type is quite a different proposition. One might with equal relevancy enquire, "What English carriage can compare with the American buggy?" The number of motor cyclists preferring the four-cylinder type to a single or twin are in an unimportant minority. I am ready to believe that ordinary standard English makes, having proved their reliability on English roads, may not be equal to the strain that some Colonial roads impose, but then with reasonable time the frames may be specially strengthened, though in the case of duplex or extra rigid types there is no necessity. On the other hand, it is pointed out that for use in, *e.g.*, the Transvaal, the road surface exigencies require a frame with at least two or three inches more clearance between the engine and ground.

English makers in touch with the market readily comply with such requirements. "Colonial Rider's" admission that his condemnation of English machines is limited to ocular criticism, and the fact that he has never ridden one, puts his evidence out of court. When "Colonial Rider" has had an opportunity to personally ride a high-class English product he will cease to wonder at the superiority of a foreign four-cylinder machine over a high-class modern single-cylinder of English make, especially in conjunction with the added comforts of an up-to-date clutch and gear.

A. W. WALL.

Governing Tricar Engines.

[3106.]—We were much interested in the paragraph in "Ixion's" notes on the governing of a tricar engine, and we quite agree with him that the idea of interconnecting the throttle and clutch, though theoretically good, will in practice be found attended by certain disadvantages, the chief of which is that to which your correspondent rightly draws attention, *i.e.*, that when restarting the machine on a stiff hill full throttle is not available till the clutch is well home. Of course, in a case such as this it is necessary to have full power directly the clutch faces begin to make contact. As a result of considerable experience we are fitting as a standard to our Phœnix Trimo a foot actuated throttle which, though working on the same throttle that is actuated by the lever on the steering column, works quite independently of the same, with the result that the clutch can be fed to a nicety in such a circumstance as that referred to above, while it carries with it the attendant advantage of enabling a thorough foot control to be obtained over the engine without removing the hands from the steering wheel.

PHŒNIX MOTORS, LTD.

Graphite Lubrication.

[3107.]—Being fully alive to the many theoretical advantages of graphite as a lubricant, I have made in the past many experiments on its use in the crankcase; but always with the same result, *i.e.*, however small may be the quantity used, it gradually accumulates behind the rings and spoils their "spring," and the results are bad compression, breakage of rings, uneven wear.

But lately I have again used graphite in the crankcase in order to observe its effect on the cylinder deposit—a subject to which I am devoting myself. I have found that with graphite, the deposit forms far more rapidly than is the case when oil alone is employed, and an examination immediately reveals to the eye—without a magnifying glass—the presence of a large proportion of shining particles of graphite.

It is obvious that as graphite will not distil or evaporate, it must, just as road dust, be caught by the oil on the walls and piston head as on a fly paper, the oil continually distilling away, whilst the graphite and dust accumulate, becoming gradually bound into a solid mass by the carbonaceous residue which is a product of the decomposition of that small proportion of the oil which does not distil.

A. DUCKHAM.

Does an Air-cooled Engine Overheat?

[3108.]—As a rider with four years' experience, may I add my view to the above vexed question.

I am inclined to take up a middle position, maintaining that overheating does take place, but that its importance is greatly over-estimated. I have come across cases where, to my mind, no other explanation can be given than that overheating has taken place. On the other hand, the way in which some motorists I have met attribute every instance of diminished engine power to the universal cause of "overheating" is ridiculous. Many times myself I have been inclined to attribute some defect to this cause, when a little examination has quite altered my case.

The universal use of water-cooling on cars points most emphatically to a fear of overheating, but it must be remembered that the system was introduced years ago with engines of a much inferior design, and has now become second nature; but while Americans can produce air-cooled cars of considerable h.p., which will stand the summers of that country, it goes a long way towards justifying my position.

To conclude, let me say that Mr. Verney's remarks *re* Boyle's Law remind me of the fable of "the pot and the kettle," for if Mr. Verney will look up any respectable text book on the subject he will find that Boyle's Law has nothing to do with temperature, it being the expression of the volume changes which a gas undergoes under the influence of pressure. He will find the law he seeks stated as the Law of Charles and Gay-Lussac. H.M.

Variable Gears on Motor Bicycles.

[3109.]—I noticed Mr. Hooydonk's letter in *The Motor Cycle* of the 29th ult., in reply to a letter of mine. Certainly he is entitled to criticise or doubt my letter as much as he chooses. It is all for the good of the cause. The letter was inserted in *The Motor Cycle* for a purpose, and the number of letters I received through the editor convinced me that it will be worth my while spending a little capital to enable me to put a variable gear on the market. I am not tied down to one design or principle. One design I know to be a success, because I have tried it myself practically. I, however, did not try it on a motor bicycle, but on another machine where power was required to be transmitted.

I do not propose to make any remarks *re* Mr. Hooydonk's letter, only that he is wrong in his assertions. Idle talk on my part would perhaps do no good. It is a very simple matter, as I have proved to my own satisfaction, that a variable gear can be fixed to a motor bicycle without the use of a jockey pulley, and one that can be controlled from the handle-bar, giving a ratio of 1-5 and 1-12. I only ask for a little time to enable me to prove that I am correct. I am in urgent need of the gear for my own benefit. I do not propose to write any more letters for publication in *The Motor Cycle*. I shall make the gear and fix it to my own motor bicycle, and then I shall be prepared to give it a trial publicly and before experts. D. B. BREARLEY.

Motor Cycling and Good Health.

[3110.]—Among the various matters discussed from time to time in your valued paper, I cannot recall any special mention ever made of the motor cycle in relation to health and bodily vigour.

Occasionally, when endeavouring to make converts of some who are still ardent push bicyclists, I invariably find the principal objections they entertain regarding the most modern method of cycling, according to their ideas, are excessive vibration and lack of exercise.

Dealing with objection number one, I explain that, to the onlooker, the shaking occasioned by a motor bicycle appears more pronounced than it is in reality; but, granting the argument has some truth in it, as a factor for maintaining a healthy circulation, and keeping one's digestive organs in order, the vibrating motor bicycle, judging by my own experience, scores beyond doubt.

The second objection, want of exercise, I certainly agree with, if it means that absence of strain on heart and lungs so often engendered by long and continuous riding, and what is most trying, namely, pedalling against a strong head wind.

In former years as a push bicyclist, sixty or seventy miles, even under favourable conditions, would often fatigue sufficiently to prevent my sleeping properly, and certain handbooks of the time I allude to, mentioned, with other items of advice, a seductive drug for the relief of physical exhaustion, a course of treatment that I do not find necessary now.

How very different at present after a long day's run of 150 miles, with ample time for sight-seeing *en route*, riding a modern 3 or 3½ h.p. magneto machine, arriving at one's destination with appetite unimpaired, and the certain prospect of a good night's rest.

After almost four years of motor cycling I have every reason to believe that it has been beneficial to me. During the winter months the only riding I get is to and from business, but even with that small daily mileage I enjoy a freedom from colds and other minor ailments that used to afflict me when I had to walk or pedal.

R. G. LINDSAY.

A Suggestion for Variable Gears.

[3111.]—I have been reading with interest the article and correspondence on variable gears for motor cycles, and in connection with countershaft gears might I offer a suggestion.

Why not have a countershaft, carrying the gear, in front of the engine instead of the magneto, and place the magneto on a platform behind, after the fashion of the Roc and other machines?

I would then propose the drive to be from a chain sprocket on the engine-shaft to a similar one on the countershaft, where the gear ratio could be altered by any suitable means; like the Anglian, for instance.

I would then take the final drive to rear wheel by means of an ordinary belt from a small pulley on the right-hand side of countershaft.

The advantages of such a gear would be, in my opinion, as follow: Absence of side-slip as compared with ordinary countershaft chain drive. Silence, and a smoother drive than could be obtained by the ordinary method. Pedals could also be retained. Of course, there may be many disadvantages in the system which I have briefly suggested, but I merely put forward the idea to be criticised.

J. W. LANGLEY.

[The Fafnir gear is fitted in a similar manner to the one suggested by our correspondent, and a Mr. Kent patented a gear on these lines, and it was illustrated and described in *The Motor Cycle* under Recent Patents, November 20th 1907, page 936.]

Outside Flywheels.

[3112.]—I read Mr. Ricardo's letter on the above subject with great satisfaction, and I am sure he will find a great many who agree with him besides myself. There is really no reason, except, I imagine, convention, why the motor cycle engine should not be designed like the modern single-cylinder car engine, *i.e.*, with large bearings (both in width and diameter) and a white metal lined adjustable big end bearing with a forged steel crankshaft; ball bearings on the crank chamber will give the narrowness desired. The bearings on some engines, both English and foreign, are absolutely amazing in their diminutive size, particularly in the case of the twin cylinder engines.

No sort of calculation is made for the pressures to which the bearing will be subjected, the whole idea being to get the engine as neat and pretty and compact as possible. There is far too little careful thought and design bestowed on motor cycle engines; wonderful carburetters giving perfect mixture are always being evolved, but the general design remains the same. There can be no doubt, if the built-up crank method were mechanically sound, that that wonderfully cheap car the 6 h.p. Rover would have had it; but instead we find a forged crankshaft and white metal big end bearing. Hundreds of engines at the present time wear their bearings out under 5,000 miles. With proper bearing surfaces proportionate to the load they ought to run 15,000 to 20,000 miles without adjustment provided they are sufficiently lubricated.

Your contributor, "Ixion," seems enamoured of the built-up crank, to judge by his remarks in the issue of the 11th ult. He is, I suppose, too far engrossed in thinking what new fitment he will hang on his patient mount. It is really, when one comes to consider it, quite remarkable that car practice has not been followed. Everyone, I suppose, wants his engine to last as long as possible, and I cannot but believe that before very long the public will see the sense of large bearings and forged crankshafts. G. D. MONICE.

Courtesy at the Show.

[3113.]—We were very pleased to read "BP 648's" letter. We are just emerging from the novice stage of motor cycling and were going to select a new mount for this year's riding, so four of us went to the show all bent upon fixing up for the new one. We did not find anyone who took sufficient interest in us to even suggest were we looking for a new bicycle. The only exhibitors who appeared to be alive to business were the accessories people. We had only to stop and look at an article and an assistant wanted to know if he could show or explain anything to us, but not so with the bicycle people. We could look at machines and discuss various points amongst us, and in five cases out of six we would be let alone, and in the sixth probably be asked, "Are you in the trade?" The reply "No" would produce a sympathetic sort of smile, which seemed to say, "What is the use of expecting us experts to go into details if you are not in the trade."

We think the private buyer was expected to look only, as if he suggested buying he would almost sure to be told that the agent for his district would be glad to talk the matter over with him. It certainly seemed to us as if the assistants looked upon the show week as an annual sort of holiday specially arranged for them to discuss over a Scotch and Polly in the office the reminiscences of the past year. As far as the attention and courteousness of British and Foreign firms are concerned, we do not think it is really the principals or principles of either that are to blame. We are of the opinion that foreign firms choose their assistants with more care, and see that they are perfectly adapted to the posts they occupy. CROSS QUARTETTE.

[3114.]—Having read letter 3083, dealing with the treatment of the motor cycle trade by English firms as against foreign, I think it only just and fair to hasten to state an experience of mine only last week. It is evident that B.P.648 chanced upon one or two firms who form no criterion of the character of English firms. I am just overhauling my twin Minerva, fitted in Chater Lea frame, and discovered a crack in head that supports girder forks, which, considering the strain of heavy engine, is not surprising; it may be that the damage was done in building frame. However, I wrote the makers stating that, although the machine was fourteen months old, the crack was not fresh, and stating other details, and was very pleased to receive by return a new part without charge or comment.

This, I think, is an ample reply to your correspondent, and I hope he will think more kindly of the English manufacturer. A.E. 260.

Exchange Transactions.

[3115.]—I should like to reply to Mr. Lake's letter in *The Motor Cycle* of January 22nd, *re* an exchanged motor cycle. He seems to have received reasonable and business-like treatment. The following is my experience of an exchange transaction. I wrote to a firm advertising in *The Motor Cycle*, and they replied. We came to terms as to price, then they wanted a cheque sent, also my machine, before they would send theirs. When they received my machine they pulled it to pieces, and then wrote complaining about it, and asked for another £3. As that was not paid, they wrote a second time demanding £3 10s. by a certain date. They also kept the machine six weeks. Their machine was advertised as 3 h.p. When it came to hand it was in a disreputably dirty state, several parts missing, and with a worn out pedal. I found it was a 2½ h.p. only; more than that. the makers stated that they don't make a 3 h.p. at all. This experience, I think, ought to be a warning to all buyers to make use of your valuable deposit system to protect themselves. Kindly insert this letter as soon as you can, as this may save very many others. HASTINGS.

[3116.]—Mr. Lake, in his letter in your issue of the 22nd ult., writes in such glowing terms of his Rex exchange as to make less fortunate riders feel envious, and if it were not that he stated he had no connection with the firm one would really think it was an advertisement.

What strikes me as so extraordinary in Mr. Lake's letter is that he states the firm simply took his word for it that he was sending his old machine. What is to prevent a stranger who never possessed a machine going to the works with the same tale and riding off with a new machine, never to be heard of again? REX 1904.

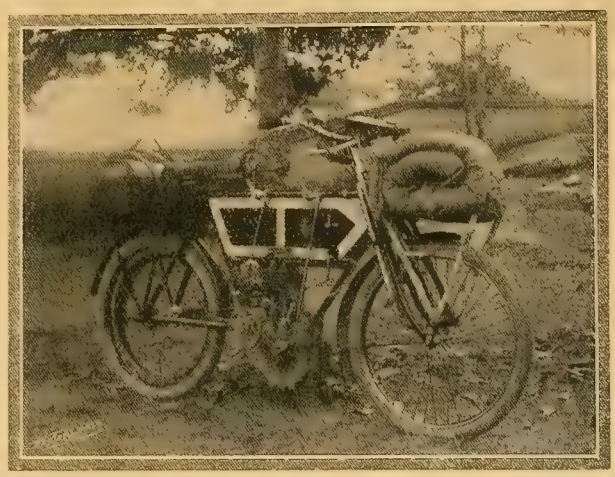
The Affiliation of Motor Cyclists.

[3117.]—With reference to a paragraph which appeared in your issue of January 29th, stating that the A.C.U. would reaffiliate our club should we agree to its terms, and to the circular which we have received from Mr. J. H. Hall, of Sheffield, we would like to point out to the officials of motor cycle clubs, whether affiliated to the A.C.U. or not, that under Rule 18 of the present A.C.U. rules, which were confirmed at the Lincoln Council Meeting on September 21st, 1907, it is stated that "clubs affiliating must do so upon the standard agreement No. 2"; and by Rule 19 of the same rules it is stated that "in respect to every member of an affiliated club a capitation grant of 2s. 6d. per member shall be paid on affiliation. This grant shall become due on January 1st, and shall be paid not later than June 30th."

On reference to No. 2 form of agreement, it will be seen by Clause 16 that the capitation grant shall become due on January 1st and shall be paid not later than June 30th in each year.

Now, as is well known, the A.C.U. rules can only be changed at a council meeting, and the rules referred to, not having been since amended, still stand good.

Further, the agreement referred to having been approved by the council, is the only agreement which can be used by



The owner of the Brown Motor Bicycle shown above, who is stationed in India, makes his machine quite "self contained," as on it he carries his bedding and a bag weighing about 45 lbs. with necessaries. The photograph was taken at Udamalfiet (in S. India), 43 miles from the nearest railway station.

the A.C.U. until the new agreement, which is going to be a *summum bonum* for affiliated clubs, has been approved at a council meeting.

You will therefore see the ridiculous position which the A.C.U. committee are taking up, and by means of which it is attempting to stifle any efforts which have or will be put forward to constitute the A.C.U. an ideal administrative body for the sport of motor cycling.

On behalf of our committee, we ask all officials of motor cycle clubs to carefully consider the position, and urge them to pay attention to Mr. Hall's circular of the 4th inst.

S. W. CARTY, hon. secretary } Newcastle and
ERNEST L. BATES, hon. treasurer } District M.C.C.

EXPERIENCES WANTED.

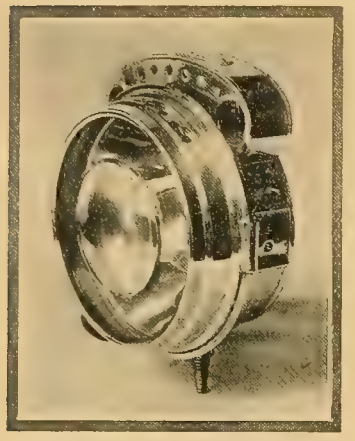
"C.H.," Cape Colony, would like readers' experiences of the four-cylinder F.N. and Phelon and Moore motor bicycles, particularly with regard to running, upkeep, wear, general behaviour, hill-climbing, and capability to take a sidecar. Stamps for forwarding replies are in our possession.

"B. G." would be glad to receive the name and address of a manufacturer of *round tubular* stands and luggage carriers for motor cycles.

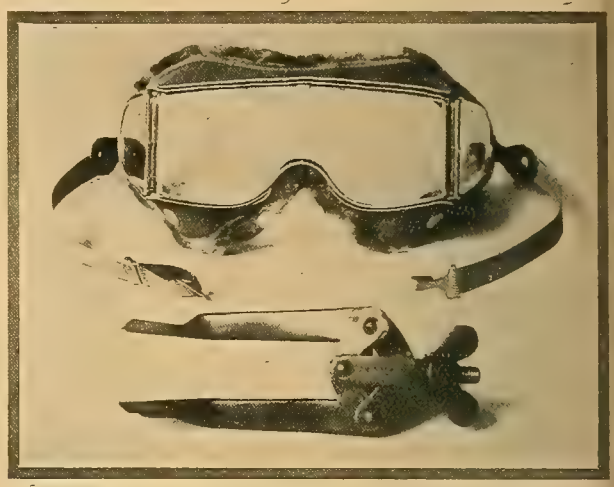
A. C. Wright, 5-6, Lorrimore Buildings, Walworth, S.E., begs us to state that he has reduced the price of his rigid pattern footrests, which latter can be fitted to practically any make of motor cycle.

Some Useful Accessories.

THERE is no more up-to-date firm in the United Kingdom than A. W. Gamage, Ltd., and it is herefore not surprising to note that for 1908 this go-ahead business has decided to take special steps to look after the interests of motor cyclists. For example, due notice has been taken of the correspondence which has recently appeared in *The Motor Cycle* concerning motor cycle lamps, with the result that the motor cyclist has a choice of several headlights from which to select. One is constructed on the lines of the search-light used in His Majesty's navy, being complete with polished reflector and glass mounted in sections, so that the heat may not crack it. It is also provided with a strong and efficient generator, is made in Great Britain, and is known as the Pulco. Another really excellent lamp is the Nulite, a splendid example of British workmanship. It possesses a good lens for projecting the light, while its generator is both well designed and well finished. Yet another type of lamp which we illustrate has a condenser lens mounted in the centre of the glass after the style of the well-known Alpha car lamp, than which there is no better made. Two models of this lamp are stocked, one being of extra good quality, while the other, though good, is lower in price. Other accessories which will specially appeal to our readers are a new goggle (see illustration) constructed after the principle of the four-glass goggle, which was among the few which allowed the rider to wear spectacles comfortably behind them, but has a single glass in front,



A motor cycle lamp with condenser lens.

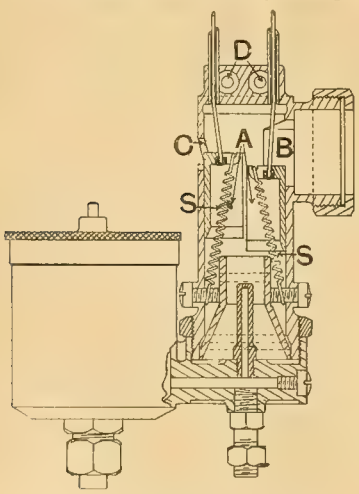


Gamage's new goggles and exhaust spring remover.

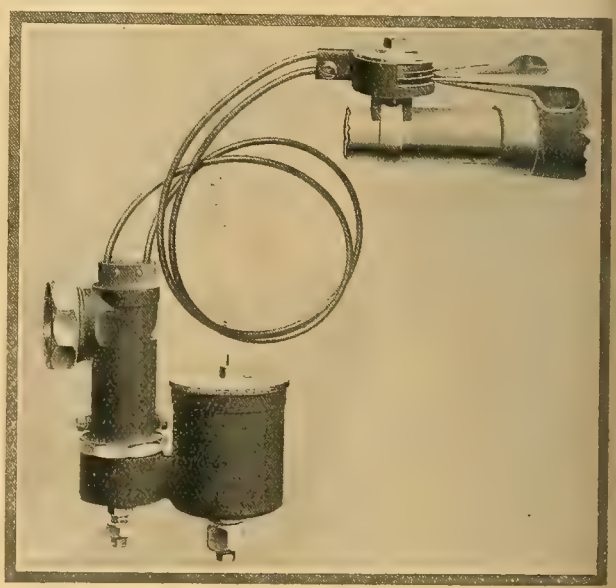
thus enabling the user to have an uninterrupted vision ahead. These goggles also have the advantage of possessing hinged clips, which allow the glasses to be removed easily for the purposes of cleaning or replacement. Also a new exhaust spring remover (see illustration) worked by a butterfly nut, which expands both of the forked legs simultaneously, a set of excellent box spanners for motor cyclists, and the Lithanode non-spilling accumulators.

A Carburetter with Handle-bar Control.

HANDLE-BAR control is gaining favour, as several makers are now fitting this desirable adjunct to the modern motor bicycle. There is no doubt that the lightweight motor bicycles made it popular, and one or two makers of heavier and more powerful machines have not been slow to recognise its advantages. Messrs. Brown and Barlow, Loveday Street, Birmingham, the makers of the B. and B. carburetter, with commendable enterprise have not waited for handle-bar control to become universal before adapting it for their carburetter, but have taken time by the forelock, and made the carburetter to suit this form of control. Mr. Brown called on us a few days ago, and showed us the first of these carburetters, and very



Section of the improved B. & B. carburetter.



The complete carburetter and handle-bar control levers.

A Carburetter with Handle-bar Control.—neat and ingenious it is. The control of air inlet and throttle is all contained in the interior of the carburetting chamber. A is a tube sawn into two halves to form two semicircular sliding pieces, which in ascending and descending cover and uncover two apertures B and C. B is the throttle and C the additional air inlet. Springs S S are attached to these slides in such a manner that the slides are always held up against the wall of the carburetter chamber. The Bowden cables and wires are instantly detachable from the slides at one end and the friction levers on the handle-bar at the other end by undoing the screws D D shown in the illustration.

The same method of attachment also enables the wires to be accurately adjusted. The part which fastens to the handle-bar contains, in addition to the two levers shown, a spring which regulates the frictional contact of the levers, and prevents them moving after they have been placed in the required position. Motor cyclists who favour handle-bar control and wish to adopt it in place of the usual tank levers and rods have merely to order a carburetter and control complete from Brown and Barlow, and they will have their wishes gratified. The general arrangement of the float chamber and carburetting chamber has not been altered, but the adapter is now solid, and not in two parts kept apart by a coil spring.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 106.*)

CHOICE OF A VARIABLE GEAR.

165. The ideal drive for solo work is the belt.

The ideal drive for passenger work is a well protected chain.

The following notes gives drawbacks possessed by certain gears utilising either drive :

A long chain from engine to rear wheel is bound to sag, and will one day jump its sprockets.

Therefore a chain drive must always include a countershaft.

If there are more than two chains, each chain should have a separate adjustment. It is possible to manage with two adjustments and the use of half links, but it follows that all three chains can never be in perfect adjustment.

Watch a crankshaft gear on the road, to see if it retains oil.

Note if the method of lubricating a hub gear entails dismounting, and allows ample provision and access.

Crankshaft gears can be instantaneously replaced by a plain pulley or sprocket in case of failure.

Operating levers are inconvenient if set close to the saddle.

Large plain bearings absorb a marvellous amount of power. Ball bearings are desirable wherever possible; ball bearings demand regular lubrication.

Try the weight of a gear apart from the machine; some scale 50 lbs.

A gear of which two or three samples have run through the annual 1,000 miles trials of the A.C.U. is a safe purchase.

Expanding pulley gears have yet to publicly prove their value in open competition.

Several rear hub and countershaft gears have excellent public records.

¶ *"The Autocar," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. Issued weekly.*

Part II.—Outfit and Management.

BACKACHE.

166. Physical discomfort on long rides makes itself felt by an ache across the small of the back. This is usually due to a bad riding position. The saddle will be too high, too far forward, or too far back. If this does not explain the trouble, get a larger saddle or a spring saddle-pillar. Pan seats are very comfortable, but do not give such a good grip of the machine as a saddle for fast riding.

CAMERAS.

167. A large camera should only be taken when it is proposed to stop some days at a place *en route*. It is best carried in a Japanese basket lined with American cloth; the camera should be swathed in silk, and well padded with wadding before being laid in the basket, and attached to the carrier. A heavy camera with shoulder straps is an abomination. The best camera for motor cyclists is a quarter-plate pocket instrument on Kodak lines. Films are preferable to plates, being lighter and safer. If chemicals are taken, they should be tabloid. Develop an exposure now and again during the tour, as otherwise you may overlook some mishap to the shutter or bellows.

CARRIAGE OF SPARE PARTS.

168. Spare plugs should be kept in wood cases, and always be provided with a new washer and their proper terminal. It is nearly always impossible to detach the old washer intact.

Spare valves should have an old cork threaded on the stem, against which the spring can be compressed, and the cap and cotter inserted. The whole should then be wound with thick rag to avoid scratching of the ground bevel edge.

All small items, especially ignition spares, should be packed with wadding in small tin boxes—an emptied tyre outfit box will do. A rubber band will keep the box closed.

Nuts, washers, etc., should be threaded on wire.

Spare leather belts should not be carried "naked," as the oil in them will collect dust, and they will want cleaning and dressing before use. They should be wrapped up in American cloth and tied to the side of the carrier.

CARRYING HOOTERS.

169. A plain metal clip encircling the handle-bar will never keep a hooter long in place. Coil a piece of leather, rubber, or emery cloth round bar under the clip, and tighten with a good strong screwdriver; then put double locknuts on each bolt, cut them off short, and burr ends over with a hammer. Then get a pump strap, and lash twist of horn to bar further down. Thus secured, it will never shake loose.

HOOTERS THAT MAKE NO SOUND.

170. A reed never loses its set except when the unwary motor cyclist attempts to rectify it with a knife. When the horn ceases blowing or becomes croupy, it is certain to have a particle of dirt between the blade of reed and its bed. A thin piece of paper or a squirt of petrol is the safest way to remove the obstruction, when the horn will recover its original blatant toot.

CARRYING SPARE AIR TUBES.

171. Spare air tubes must be carried in separate receptacles, and be kept dry and cool. The motor cyclist's best plan is to roll them up, smear them with French chalk, and slip into an old sponge bag. The bag may then be made into a neat package with American cloth, and tied securely under the saddle.

CLEAN HANDS.

172. Dirt is easily removed from the smooth places of the hands with a stiff brush and petrol, paraffin, dry soap, soft soap, ammonia, and the patent cleansers sold for the purpose. Most of these substances roughen the hands, none are a great help to remove dirt from the interstices of broken skin, the finger nails, and so on. The hands should therefore have these interstices filled with soap, vaseline, or other grease, before a dirty job is tackled. Where special cleansers are employed, a good toilet preparation should be used when the hands are clean, or the skin will retain dirt faithfully next time a job is on hand.

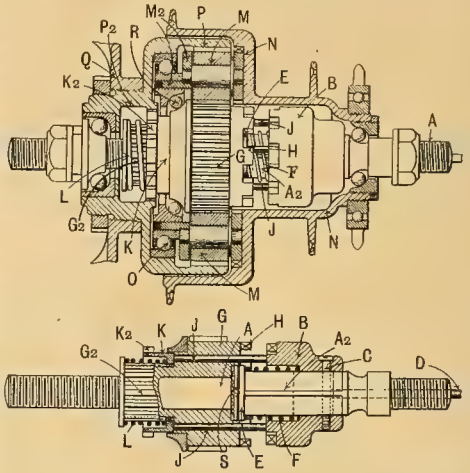
(*To be continued.*)

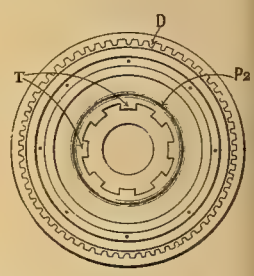
RECENT PATENTS.

By ERIC W. WALFORD, F.C.I.P.A.

A Hub Two-speed Gear.

THIS change-speed gear and free engine has been patented by the Triumph Cycle Co., Ltd., Coventry, in conjunction with their Mr. Batchelor. The road wheel spindle A is fixed, as usual, and is made non-circular in cross section at or about the centre of its length, as shown at A^2. This part A^2 may conveniently be square, and on this squared portion is free to slide a dog clutch member B. The dog clutch member carries a pin C or the like, which passes through a slot in the spindle, in the interior of which a rod or chain is attached to the pin, as is usual. Preferably this takes the form of a rod D whereby the sliding dog clutch member B can be moved axially. Screwing on the spindle is a collar E, which forms an abutment for a spring F lying between this collar and the sliding dog clutch member B. This spring tends to force the clutch member to the right-hand end of the spindle, and the clutch member is moved against this spring by the actuating rod D. This collar preferably screws up against the shoulder formed by the end of the squared portion A^2 of the spindle. On the circular portion formed beyond this collar is mounted the sun pinion G, which is free to rotate upon the spindle, but not to slide in relation thereto. At the side of the sun pinion opposite to the dog clutch member B are formed clutch dogs H, which are adapted to be engaged by the sliding clutch member B, so that the sun pinion is held stationary. Passing axially through the sun pinion is a number of spindles or plungers J. These bear against the sliding clutch member B on the one hand, and against a sleeve K free to slide on the sun pinion G on the other hand. This sleeve K is mounted on keyways G^2 on the sun pinion, or otherwise prevented from rotating in relation thereto. It has on its exterior clutch dogs K^2, and it is hereinafter referred to as the high speed clutch member K. Between the high speed clutch member K and any suitable abutment formed on the sun pinion is a spring L, which tends to keep the clutch member K as far to the right as possible. The sun pinion is engaged by planet pinions M, as usual, which, in this case, are mounted on the hub shell N, or, rather, a ring attached thereto. The spindles of the planet pinions M are supported in a ring M^2 on the side opposite from the hub shell, and on this ring is arranged a ball bearing O, which supports the internally toothed ring P This ball bearing is preferably of the annular or cage type as shown. The internally toothed ring is extended outside the hub, where it narrows down, and forms a screw-threaded sleeve P^2. Upon this screw-threaded sleeve is screwed the driving belt pulley Q, chain sprocket, or the like which receives power from the motor or engine. This sleeve P^2 is mounted on ball bearings on the spindle, at one end whilst the other end of the sleeve, that is to say, the internally-toothed ring, is supported on the annular ball bearing above mentioned. The ring M^2 which supports the annular ball bearing is mounted upon a ball bearing at R running upon the sun pinion. As this last mentioned ball bearing may possibly put a small amount of longitudinal thrust upon the sun pinion, a ball race S may be arranged between the right-hand end of the latter and the abutment for the sliding dog clutch spring. The hub shell is supported on ball bearings at the right-hand end upon the spindle. Upon the interior of the internally-toothed ring sleeve P^2 are formed clutch dogs T, which are adapted to be engaged by the dogs K^2 on the high speed clutch member K when the latter is in its normal position. When this is the case the high gear is obtained. Owing to the sun pinion being locked to the internally-toothed ring by this clutch connection K^2 and T,





rotation of the internally-toothed ring rotates the sun pinion with it. Two members of the epicyclic train now being locked together, the train must now be rotated as a solid mass, and, consequently, the hub shell is rotated at the same angular velocity as the driving sleeve. To obtain the low gear the sliding clutch member B is forced to the left along the spindle. This engages it with the clutch dogs H on the side of the sun pinion, but, at the same time, it pushes the spindles or plungers J axially, which in turn slide the high speed clutch member K out of engagement with the clutch dogs T on the driving sleeve P^2. The sun pinion is now locked to the fixed spindle and rotation of the internally-toothed ring rotates the planet pinions on the now fixed sun pinion, and the planet pinion carrier and hub shell are rotated at a lower angular velocity than the driving sleeve. By this arrangement the clutches and springs are self-contained, so that when running there is no friction of the gear changing parts, and there is only a momentary friction on the heads of the plungers when the gear is changed.

Messrs. S. Bottone and Son write that the automatic variable speed pulley which was published under the heading of "Recent Patents" on page 92 has been made and supplied by them for several years past, the pulley being fitted to accumulator-charging dynamos in order that the constant speed of the armature should always be maintained.

We are in receipt of the Continental Tyre Co.'s latest catalogue of motor cycle tyres. The Continental Tyre Co. go in for two extremes—a special heavy motor cycle tyre known as the "Modèle de Course" for heavy motor cycles, and a new lightweight motor cycle tyre with beaded edges, which is specially designed for use with lightweight motor bicycles. The ordinary medium strength motor bicycle tyres are, of course, also stocked. The heavy Continental butted inner tube for motor cycles is illustrated, as well as rubber belts and belt punches and a Sjambok, intended for motor cyclists who ride in districts where there are many savage dogs. In France, one of these whips would be most desirable.

We called one day last week at the Zenith Motor Engineering Co.'s premises, 101a, Stroud Green Road, N., and tried their new variable gear as fitted to the latest Zenette motor bicycle. The gear consists of an expanding pulley, but instead of a jockey pulley to take up the slack of or tighten the belt, the rear wheel is moved backwards and forwards in long plungers carried in tubes each side of the rear forks. We were delighted with the way the gear behaved on Muswell Hill. It started the machine from a standstill, and enabled the hill to be climbed without a falter. Afterwards we drove the machine to a switchback road ending with a hill of one in twelve. While descending the gear was at its highest ratio, but as the uphill gradient increased the gear ratio was lowered, with the result that the hill was climbed practically without altering the spark advance. We then returned to the works, and entered the yard, negotiating two awkward right-angle bends, and the belt never slipped unduly. We shall publish drawings of this device very shortly, with the results of further experiences.

MOTOR BICYCLES FOR SALE.

HALIFAX.—£2 deposit and six monthly payments of 27s. 6d. secures 2¾ h.p. Antoine, 2¾ h.p. Kerry, 2¾ h.p. Excelsior, 2¾ h.p. Humber, 2¾ h.p. Ormonde, 2¾ h.p. M.M.C., or 3 h.p. Auto Motor. All guaranteed running order.

HALIFAX.—4 h.p. twin-cylinder Werner, 26 by 2¼ Michelins, very smart mount; £18.

HALIFAX.—2¾ h.p. F.N., spray, 26in. wheels, vertical engine, very speedy, good condition; £14 10s.

HALIFAX.—3 h.p. Rover, 26 by 2¼in. Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

HALIFAX.—3½ h.p. 1906 Minerva, non-skid to rear, a grand winter's mount; £19 19s.

HALIFAX. — 2¾ h.p. Antoine, spray, trembler coil, accumulator ignition, girder forks; only £10 10s.

HALIFAX.—4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £18 10s., perfect order.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, and sidecar; £27 10s.

HALIFAX. — 5 h.p. Rex, Longuemare, trembler coil, Clincher tyres, Fish-back belt; no offers; £16 15s.

HALIFAX.—3¾ h.p. Rex, 22in. frame, vertical engine, trembler, good order; snap this, £11 10s.

HALIFAX.—2 h.p. Minerva, mechanical valves, spray carburetter, magnificent climber; only wants seeing; £8 10s.

HALIFAX.—2¾ h.p. Minerva (1906), spray, accumulator ignition, very efficient mount; £14 10s.

HALIFAX.—1907 Rex de Luxe, magneto, twin tyre, Roc clutch, spring forks; £29; exchanges wanted.

HALIFAX.—4 h.p. Bat, two-speed gear, done about 300 miles; £20.

HALIFAX.—Very fine 1906 Rex, spring forks, low frame, Longuemare, 2¼ tyres; £15 15s.

HALIFAX.—2 h.p. Minerva, 21 frame, 26 by 2 tyres, good little jigger; £6 10s.

HALIFAX.—2¾ h.p. M.M.C., trembler coil, V belt, tyres good, goes well; £10 10s.

HALIFAX.—Special light low 1905 Rex, 3¾ h.p., Rex spring forks; £13.

HALIFAX.—Fine 3½ h.p. Rex, 50 guinea model, spray carburetter, good order; £11 10s.

HALIFAX.—2¾ h.p Kerry, light, low, 26in. wheels, spray carburetter; cheap; £10.

HALIFAX.—3 h.p. Lloyds, vertical engine, Chater-Lea, long bars, low seat, 2¼ Palmers; £14 10s.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 100 miles non-stop; £13 10s.

HALIFAX.—3 h.p. M.M.C., vertical engine, trembler coil, goes like a chronometer, fine Palmers; £13.

HALIFAX.—2 h.p., without name, and an orphan. Please adopt for £6 10s.; deserves good home.

HALIFAX.—1907 twin Rex, shop-soiled, and unridden, 2¼ tyres, fully guaranteed; £23; don't delay.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments. See Tricar list. Telephone, 766. High-class machines purchased for prompt cash.—16, Westgate, Halifax.

3½ h.p. 1907 Quadrant, splendid hill-climber, spring forks, B100 saddle, new Ducoflex belt, stand, carrier; £22.—Can be seen and tried at Broadbear's, Regent Street, Teignmouth, Devonshire.

DE DION, 3½ h.p., water-cooled, convertible quad, Longuemare, two accumulators, perfect, with front wheel; £20; Dunhill's leather trousers and jacket, £4.—Brown, King Street, Thetford.

A SPICY OFFER.

SHOP-SOILED REX DE LUXE,
latest black finish, Roc clutch, magneto, twin tyres, spring forks, spring seat, starts like a car. What a specification for £35 or exchange. £35 or exchange.

A BEAUTIFUL 6 h.p. TWIN REX,
fitted with spring forks, long bars, low built, Longuemare, trembler coil, foot brake, new fourteen months ago, £22, or £6 and a decent 3½ h.p. machine.

SHOP-SOILED 3½ h.p. 1907 REX,
spring forks, long bars, special 2¼in. tyres cost 30/- extra, foot brake, internal expanding brake, footrests as well as pedals, small spare tank to carry spare accumulator. Price £19 19 0, with accessories. Exchange entertained.

SMART 1906 3½ h.p. MAGNETO REX,
spring forks, Greenwood's variable speed pulley, long bars, foot brake, £18 18 0 or exchange.

NO POWER sounds awful to a motorist, especially when your pals sail away and leave you. £5 will stop all this. We accept this amount and your low-powered machine, and supply you with a 3½ h.p. REX, capable of leaving your pals.

£3 10 0 allowed for PUSH CYCLES; if high-class, proportionately more. Cash, Credit, or Exchange.

5½ h.p. TWIN VINDEC (1907), Truffault forks, magneto, Whittle's belt, stand	£35 0
TWIN ANTOINE (1907), new, less tyres	18 0
FOUR-CYLINDER DURKOPP	28 0
FOUR-CYLINDER F.N., spring forks, magneto	22 10
5½ h.p. REX DE LUX, Roc Clutch, mag.	30 0
3½ h.p. TRIUMPH (1907), magneto	35 0
3½ h.p. QUADRANT (1907), spring forks	25 10
3½ h.p. MINERVA (1907), shop-soiled, spring forks, special 2¼in. tyres, stand	25 10
TWIN CLEMENT-GARRARD	18 18
3½ h.p. N.S.U., magneto, low built, smart	22 10
5 h.p. TWIN G.B., magneto, spring forks	
4 h.p. STEVENS, low built, Bat pattern	16 16
3½ h.p. CHATER-LEA, low built, smart	12 12
TWIN KERRY, low built, smart	22 10
3 h.p. HUMBER, free engine, powerful	10 15
3½ h.p. REX, vertical engine, powerful	10 15

LIGHTWEIGHTS.

1¾ h.p. F.N., vertical engine, low	£6 15
1¾ h.p. MINERVA, good tyres, carrier	6 15
2½ h.p. CENTAUR, spray, Stanley belt	7 15
2¼ h.p. ORMONDE, Antoine engine, powerful	7 10
2 h.p. MINERVA, M.O.V., spray, splendid order	7 10
2½ h.p. JAP, spray, good hill-climber	8 10

MOTOR TRICYCLES.

2¾ h.p. DE DION, tyres like new	£6 10
2¾ h.p. HUMBER, extra good tyres	6 10

TRICARS.

4 h.p. REX, air-cooled, chain drive, free engine, coach-built	£15 15
4 h.p. TRENT, W.C., two speeds, open frame, wheel steering	25 0
6 h.p. TRIETTE, magneto, spring seat	32 10
10 h.p. TWIN REXETTE, open frame, seats three, special finish	42 10
4½ h.p. HUMBER, W.C., two speeds	20 0

SIDE AND FORECARS.

MILLS & FULFORD, shop-soiled	£6 6
MONTGOMERY, flexible joints	3 18
BRITISH STANDARD, brand new	5 15
FORECARRIAGE, coach-built, side stays	4 18
TRAILER, 20/-. Another very good	1 10

CONTINENTAL TYRES.	Cover.	Tube.	CONTINENTAL TYRES.	Cover.	Tube.
26×2	24/3	9/6	28×2	25/6	10/3
26×2¼	25/6	10/-	28×2¼	27/3	10/6
26×2½	29/6	11/-	28×2½	29/9	11/3

Liberal allowance for your old cover and tube in part payment.

ENGINES.	ENGINES.	ENGINES.
New 6 h.p. TWIN ANTOINE, complete	£8	5
New 4 h.p. ANTOINE, M.O.V., complete	6	5
New 5 h.p., W.C., 85×105 mm., M.O.V.	8	5
TWIN REX, 6 h.p., nearly new	7	5
2¾ h.p. MINERVA, vertical, M.O.V.	4	5
CHATER-LEA Tricar Radiators	1	10

Smaller engines taken in part payment.

CORONET SPRING SEAT-PILLARS.
A few shop-soiled, 9/6 each.

BOOTH'S "GRIPSKIN" BELT.
Made from selected parts of hides. Eyeletted each end to take fasteners.
½in., 9d.; ⅝in., 10½d.; ¾in., 1/-; 1in., 1/1.
Special terms to the trade.
High-class motor cycles wanted for cash.

H. BOOTH Coronet Works WADE ST., **HALIFAX.**
Telephone 198Y.

MOTOR BICYCLES FOR SALE.

N.S.U. and Roc Agent, Hodgson, 10, Horton Road, Bradford.

ROC Agent.—6 h.p. and 3 h.p. brand new N.S.U.'s, 1907; what offers?

ROC Agent.—Continental tyres, 26 by 2, 24s., tube 9s.; 3s. allowed for old cover, 1s. 6d. for tube; all sizes in stock.

N.S.U. Agent.—Mills and Fulford forecarriages, coach-built, £5 10s.; Wade and Jones spring handle-bar, 7s. 6d.

ROC Agent.—Clement-Garrard, 3 h.p., twin, two-speed gear, spring forks; £11.

ROC and N.S.U. Agent.—Hodgson, 10, Horton Road, Bradford.

VINDEC Special Motors from stock.—Woodman's, Peterborough.

3 h.p. Fafnir, new, shop-soiled; what offers?—Hillsdon, Hungerford.

MINERVA, only run 50 miles, magneto, 3½ h.p.; £26.—Young, Trent Bridge, Notts.

3 h.p. F.N., a flier; £11; perfect.—Young's Garage, Trent Bridge, Nottingham.

TRIUMPH, 3 h.p. (magneto), Palmers, equal new, spares.—Campbell, 29, Barossa Place, Perth.

2¾ h.p. Werner, excellent condition, spray, girders; £9 10s.—87, Thompson Street, Darlington.

1½ h.p. Clement-Garrard, perfect order, little used; £7.—Stimpson, Broad Walk, Stratford-on-Avon.

3¼ h.p. Rex Motor, excellent running condition; £8 10s.—Prospect View, Lostock Hall, near Preston.

1906 and 1905 Rexes, must be sold; offers wanted.—Particulars, Wilson, 22, Park Parade, Harlesden, N.W.

TRIUMPH, old pattern, good condition, recently overhauled; what offers?—Pridmore, Brooklyn, Coventry.

£9 10s.—Motor cycle, vertical, about 2½ h.p., low, Chater-Lea frame, splendid condition.—253, Bath Road, Hounslow.

3¼ h.p. Rex, surface, 1904, 50 guinea model, splendid condition; £12, or nearest.—9,120, *The Motor Cycle* Offices, Coventry.

LATEST 3½ h.p. Triumph Motor Cycle and Montgomery sidecar; 50 guineas.—Pearce, 57, Gauden Road, Clapham, S.W.

ARIEL Motor Bicycle, 3½ h.p., Dunlops, 26in. wheels, spray carburetter, modern; bargain, £13 10s.—12, Bull Ring, Birmingham.

ROC, 3½ h.p., magneto, free engine, clutch, splendid condition; great sacrifice, £19 19s.—Whittle, 41, Skelbrook Street, Earlsfield.

LIVERPUDLIANS! — Call at 74, Bold Street, and see latest models of Triumph and Roc motors.—Hitchings are the sole agents.

5 h.p. Twin Antoine, in perfect order, free engine pulley, starting handle, quantity spares.—T. Alletson, Northop, N.S.O., Flintshire.

QUADRANT Motor Bicycle, 2 h.p. Minerva engine, Clincher tyres; sell sacrifice, £5 18s.—Ford, 5, Soho Hill, Handsworth, Staffs.

3½ h.p. Rex, Tourist, 1908 35 guinea model; cannot take delivery direct from makers; best cash.—9,063, *The Motor Cycle* Offices, Coventry.

3½ h.p. Triumph (1907), magneto, new last August, run 300 miles only, as new, unpunctured; £35.—Mitchell, Langton, Sidcup Hill, Kent.

WERNER 2½ h.p. Motor Bicycle, spray carburetter, low built; bargain, £8 10s.; approval.—Westfield House, Birchfield Road, Aston Manor.

3½ h.p. Triumph, magneto ignition, 1907, only ridden about 700 miles, as good as new, lamp, horn, and spares; £35.—Heaver, Ratham, Chichester.

3½ h.p. Minerva, splendid condition, not run 1,000 miles, Palmer tyres, Bowden exhaust lift; £15.—Particulars, Knight, 18, The Downs, Wimbledon.

MOTOR BICYCLES FOR SALE.

6 h.p. Twin-cylinder Antoine; 20 guineas.—Garaged at Wauchope's, 9, Shoe Lane, London.

3½ h.p. Minerva, £13 10s.; forecarriage, £4; after six.—31, Landor Road, Stockwell.

TRIUMPH, 3 h.p., accumulator, perfect condition; £20, bike part.—52, Perry Hill, Catford.

4 h.p. Twin-cylinder Hamilton, very powerful engine; £12 12s.—Wauchope's, 9, Shoe Lane, London.

3 h.p. M.M.C., Chater low frame, torpedo, new condition; £13 15s.—129, High Street, Croydon.

3 h.p. Ariel, vertical engine, in particularly good condition; price £16 10s.—Wauchope's, 9, Shoe Lane, London.

3½ h.p. Motor Cycle, good condition; £8.—Higgins, 2, Portsdown Place, Kilburn, London.

MINERVA, 2 h.p., £8; tricycle, 3 h.p., gear driven, climb anything, £8.—40, Copley Road, Doncaster.

3½ h.p. N.S.U., fitted with magneto ignition, 24in wheels, low frame; £20 10s.—Wauchope's, 9, Shoe Lane, London.

3¾ h.p. Durkopp, magneto, footboards, spring forks, good condition; £18.—19, Cheriton Square, Balham.

3 h.p. Chase, Decart engine, Chater-Lea fittings; price £16 10s.—Wauchope's, 9, Shoe Lane, London.

3 h.p., brand new, splendid goer, faultless; £25; part exchange entertained.—Alf. Harden, Ham Street, Kent.

3½ h.p. M.M.C., Chater-Lea, Palmers, grand condition, accessories; £10 10s.—38, The Gardens, East Dulwich, S.E.

3½ h.p. Bat Motor Cycle, spring frame, only once used; lowest price £25.—Wauchope's, 9, Shoe Lane, London.

HUMBER, 1¾ h.p. Minerva, good running order, perfect; £7, or offer.—Goldwasser, 25, Southampton Street, Pentonville.

3½ h.p. 1905 Rex, in splendid condition and running order; price £12 10s.—Wauchope's, 9, Shoe Lane, London.

3½ h.p. Genuine Minerva, good condition; £15, or exchange lower power and cash.—Murrell, Hadleigh, Essex.

3½ h.p. No. 1 Ariel Motor Cycle, fitted with spring forks, condition as new; price £15 15s.—Wauchope's, 9, Shoe Lane, London.

LONDON Auto Co., Clapham, S.W.—Motor Cycles built to any specification. Catalogue illustrating seventeen models (stamp).

3 h.p. Fafnir, in Chater-Lea frame, a good, sturdy machine; price £15.—Wauchope's, 9, Shoe Lane, London.

2¼ h.p. Brown Lightweight, genuine B.S.A. motor frame, girders, Palmers, first-class mount, only 65 lbs., very reliable; £7 10s.

2¾ h.p. Minerva, genuine Chater-Lea frame, Clinchers, B100, Longuemare, long bars, low; £12, exchange or terms.—Radium, Gray's Inn Road, W.C.

4 h.p. Roc, fitted with Stevens engine, magneto ignition, and free engine clutch; price £21, lowest.—Wauchope's, 9, Shoe Lane, London.

3½ h.p. Brown, magneto, perfect running order and condition, low build, 26 wheels; £25.—F. Jermy, Frimley Green, Surrey.

BARGAIN.—Quadrant, 3 h.p., good running order, and in new condition; £11 11s.—Jas. Whewell, 108, Lonsdale Street, Accrington.

2½ h.p. Triumph Motor Cycle, fitted with vertical Jap engine; price £14 10s.—Wauchope's, 9, Shoe Lane, London.

2¾ h.p. Werner, just enamelled, plated, engine overhauled, low position, do 35 easily; £12.—Shaw, Jeweller, Wellington, Salop.

5 h.p. Vindec Special, spring forks, used for hill-climbing and trial runs; price £28.—Wauchope's, 9, Shoe Lane, London.

FREE FOR ONE WEEK ONLY.

A Brand New LYCETT'S LIGHTNING STAND supplied free to all cash buyers of any of the following motor cycles:

3½ h.p. 1907 **TRIUMPH**, magneto, like new	£35	0	0
5-6 h.p. **TWIN PEUGOT**, a beauty	25	0	0
3½-4 h.p. **CENTAUR**, vertical engine	18	0	0
12 6 h.p. **TWIN REXES**, some like new.			**12**
9 3½ h.p. **1906 REXES**, Rex spring forks, long and low.			**9**
7 3½ h.p. **1905 REXES**, 21in frames, 26in. wheels, Longuemare carburetter.			**7**
5 3½ h.p. **1907 REXES**, like new.			**5**

Any of the above cheap for cash, or your old machine in part payment. Send full particulars and I will quote you.

6 h.p. **REX DE LUXE**, brand new	£33	0	0
4 h.p. **ANTOINE**, 1907 machine	18	0	0
3 h.p. **TRIUMPH**, grand goer	20	0	0
3½ h.p. **QUADRANT**, '07, done 200	25	0	0
3½ h.p. 1906 **REX**, spring forks	15	0	0
3 h.p. 1907 **N.S.U.**, nearly new	20	0	0
3½ h.p. 1907 **REX**	18	0	0
3½ h.p. **BROWN**, 1907 model	21	0	0
3½ h.p. 1907 **REX**, spring forks	18	0	0
5½ h.p. 1907 **TWIN REX**, spring forks	22	0	0
4½ h.p. **TWIN MINERVA**, 1907, brand new	31	0	0
3 h.p. **CLARENDON**, vertical, Longuemare	10	0	0
3 h.p. **KING**, vertical, spray	10	0	0
3 h.p. **BRADBURY**, vertical	11	0	0
2¼ h.p. **ARIEL** lightweight	10	0	0
2¾ h.p. **GRIFFON**, vertical	12	0	0
2¾ h.p. **ZEDEL**, vertical	12	0	0
2 h.p. **WERNER**, vertical, spray	8	0	0
3½ h.p. **BROWN**, 1906 model	17	0	0
3½ h.p. 1905 **REX**, 24in. frame	12	0	0
3½ h.p. 1904 **REX**, 22in. frame	9	0	0
3 h.p. **QUADRANT**, spring forks	12	0	0
3½ h.p. **DUX**, M.O.V., spray	12	0	0
3 h.p. **NOBLE**, vertical, M.O.V.	10	0	0
3 h.p. **REX**, good goer	9	0	0
2¾ h.p. **R. & PRICE**, 26in. wheels	10	0	0
1¾ h.p. **CLEMENT-GARRARD**, two speeds	10	0	0
2¼ h.p. **BUCHET**, vertical, spray	9	0	0
3 h.p. **KING**, vertical, spray	10	0	0
2 h.p. **QUADRANT**, spray carburetter	8	0	0
£7 3½ h.p. **AUTOMOTOR**, spray, vertical engine	7	0	0
£4 10 2 h.p. **KING**, spray carburetter	4	10	0

Push cycle, etc., accepted in part payment.

TWIN PEUGOT and rigid sidecar	29	0	0
5-6 h.p. **REX TRICAR**, twin engine	22	0	0
3½ h.p. **TRICAR**, Phœnix, two speeds	19	0	0
3½ h.p. **MINERVA TRICAR**	18	0	0
British Standard sidecar, brand new	5	0	0
Montgomery Sidecar, 26in. wheel	5	10	0
Montgomery Sidecar, 28in. wheel	5	10	0
Very nice forecar, 26in. wheels	4	10	0
Nice little trailer	1	10	0

CARS.

6½ h.p. **ASTER**, two-seater	55	0	0

MISCELLANEOUS.

2 h.p. Singer engine and magneto	3	0	0
7 h.p. water-cooled engine, like new	7	0	0
Osborne four-speed gear	2	10	0
Osborne free engine clutch	1	10	0
N.S.U. two-speed gear	3	0	0
3 h.p. Ariel engine	3	0	0
Concert Phonograph, 60 records	5	10	0
B100 Saddle	0	12	6
Lycett's L72 Saddle, quite new	0	7	6
Dunhill's Speedometers	0	6	6
3 h.p. Quadrant Engine	3	0	0
3½ h.p. 1907 Quadrant Engine, new	4	10	0
3 h.p. Automotor Engine	2	19	0
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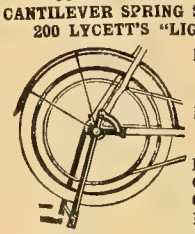

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3¼ h.p. King, vertical M.M.C. engine, Chater-Lea fittings; £12 10s., lowest.—Wauchope's, 9, Shoe Lane, London.

TRIUMPH, 1906 (late), magneto, perfect, no trouble, excellent condition; lowest £26.—T., 17, Ravenstone Road, Hornsey, London.

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GENUINE 1907 Quadrant, 3½ h.p., latest pattern, low frame, spring forks, etc., practically brand new; £28.—185, College Road, Saltley.

2¾ h.p. Vindec Special, fitted with F.N. engine, in sound condition; price £14 10s.—Wauchope's, 9, Shoe Lane, London.

3¾ h.p. N.S.U., magneto, never ridden, not registered. 1in. Shamrock; £36, bargain; buying tricar.—Etherdo, Brunswick Club, Leeds.

2¾ h.p. Minerva, vertical engine, in first-class condition, low frame; price £10 10s., lowest.—Wauchope's, 9, Shoe Lane, London.

3 h.p. Triumph, magneto, spring forks, tyres nearly new, faultless running condition, with spares; £26, or near offer.—Broadbank, Harrogate.

3½ h.p. Minerva, 1907 model, in good running order and condition; price £19 19s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2½ h.p. Minerva, low, torpedo tank, butt-enders; £7 10s., or offer, exchange of Clement-Garrard entertained.—148, Gassiot Road, Tooting.

4 h.p. Twin-cylinder 1907 Werner, divided twin cylinders, vertical engine; splendid bargain, price £15.—Wauchope's, 9, Shoe Lane, London.

1907 Triumph, 3½ h.p., magneto, spring forks, many spares, absolutely perfect, lamp, pump, tools; sacrifice £18—12, New Park Road, Chichester.

3½ h.p. Brand New 1907 Triumph, magneto and spring forks; £41; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

1907 3½ h.p. Brown, magneto ignition, guaranteed new condition; £30, or reasonable offer; will ride 100 miles to buyer.—107, Somers Road, Southsea.

4 h.p. M.M.C. Pattern Motor Cycle, vertical engine, spring front forks, in first-class condition; price £15.—Wauchope's, 9, Shoe Lane, London.

5 h.p. Twin Kerry, with Montgomery sidecar, good condition; any trial; best cash offer accepted.—Garaged at Denham's, Sandown Cycle Works, Esher.

5½ h.p. Twin-cylinder Rex, sprung back and front, in particularly good condition; price £16 10s., lowest.—Wauchope's, 9, Shoe Lane, London.

1907 Twin Minerva, low, Chater-Lea frame, Longuemare, Watawata, good as new; genuine bargain, must sell; first cash £21 gets it, no offers.—29a, Hills Road, Cambridge.

£4 10s.—1¾ h.p. Minerva, going order, spray, V belt, seat low, improved contact breaker.—Tyler, 11, Southbrook Gardens, Ellison Road, Streatham Common.

3½ h.p. Vindec Special, 1907 model, magneto ignition, and Truffault forks, enamelled cream; price £38, splendid bargain.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

1906 Triumph, 3 h.p., magneto, perfect condition, new Palmer tyres both wheels, spare inner, three belts, etc.; £27.—V. A. Gunther, Hampton Wick, Middlesex.

IMPERIAL Rover, 3½ h.p., in good condition, only two years old, when new cost £63; sell £18, bargain.—Write for particulars, Harry Franklin, 182, Stanley Street, Accrington.

4 h.p. Aster, genuine Chater-Lea, 1in. belt, 2½in. Moseley tyres, everything absolutely perfect, property of expert, grand touring mount; £16 10s.; bargainers please abstain, London.—Box 9,128, *The Motor Cycle* Offices, Coventry.

MOTOR BICYCLES FOR SALE.

GRIFFON, 2-2½ h.p., light, low, neat; nearest £10. — 99, Montague Road, Leytonstone.

3½ h.p. Rex, spring forks, Dunlops, trembler, excellent condition; £12. —62, Colvestone Crescent, Dalston, London.

2½ h.p. Kerry, low, long bars, clutch, not ridden 50 miles; £13.—C.G., Bedford Chambers, Covent Garden, London.

3½ h.p. White and Poppe, Swift, all accessories, perfect; £17 17s.—H., Westwood, Broad Lane, Hampton, Middlesex.

2½ h.p. Brown, spring forks, etc., absolutely perfect; must sell; £12 10s., great bargain.—242, Green Street, Upton Park.

3¼ h.p., low, vertical engine, M.O.V., good order, tyres like new; £7, bargain. — 16, Northumberland Avenue, Manor Park.

1907 Rex de Luxe, Roc clutch, 2¼in. back wheel, magneto, excellent condition; £25. — Lees, King's Garage, Cambridge.

CLYDE, 2¾ h.p., magneto, Albion pulley, new Peter-Unions, first-class running order, all complete; £14.—The Knoll, Narboro', Leicester.

GENUINE De Dion, 2¾ h.p., low Chater-Lea frame, long bars, powerful and reliable; must sell; £12.—Harrison, 51, Hare Street, Woolwich.

h.p. Universal, Longuemare, Palmer and Continental tyres, spring forks; £5 10s., or exchange twin engine.—B., 56, Gellatly Road, New Cross.

REX de Luxe, Druid spring forks, twin tyres, and spares, splendid condition; £30. — Brockbank, Blakeley Green, Tettenhall, Wolverhampton.

2 h.p. Quadrant, spring forks, trembler, stand, new cylinder, spares, very reliable; trial; £9, bargain.—O. Marshall, Old Vicarage, Ruskington, Lincs.

2¾ h.p. Genuine Brown, complete with tools, headlight, two belts, and accessories, perfect condition; £13, or offers.—Rutley, Lesbourne, Reigate.

LIGHTWEIGHT, 3 h.p., very long and low, finished green, new six weeks ago; cost £38, accept low price; photo, etc. — 25, Burscough Street, Ormskirk, Lancs.

5 h.p. Twin Peugeot, May, 1907, Chater-Lea frame, Longuemare, Dunlops, 24; sell £35, or exchange 3½ h.p. magneto 1907 Triumph.—Moore, Stoke Bishop, Bristol.

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1908 Triumph, new, exactly as delivered, unridden; through unforeseen circumstances, will sacrifice £5, sell £43 cash, no offers.—Moore, 224, South Lambeth Road, London.

3 h.p. Quadrant, perfect goer, spring forks, B100 saddle, 2¼ Palmer tyres, two accumulators, stand, spares, numbers, tools, lamp, etc.; £15, close offer. —92, Ingram House, Stockwell.

TWIN Minerva, magneto, spring forks, as advertised by Minerva, in splendid condition; cost over £53, £24; Osborne four-speed pulley, £3; Liberty sidecarriage, £5; lot £30.—50, Middlewood Road, Sheffield.

5 h.p. Twin Givaudan Motor Cycle, Chater-Lea frame, 26 by 2½ tyres, trembler coil, Longuemare carburetter, long footboards, in splendid order; £15.—Thatcher, Maydene, Edward Road, Coulsdon, Surrey.

3½ h.p. Green, built by Chater-Lea, magneto, spring forks, low frame, has patent combined jacket and radiator, easily detachable, overhead valves, no valve pockets, exceptionally fast, flexible, powerful up hill, used for trial only, owner having two; sacrifice one at £37, or nearest offer; trial given; cost £55.—Green, 49, Reginald Road, Bexhill-on-Sea.

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HAMPSTEAD.—3½ h.p. Quadrant, late 1907 model, spring forks, stand, lamp, etc.; £20.

HAMPSTEAD.—3½ h.p. Triumph, late 1907, only run 800 miles, with spares; £34.

HAMPSTEAD. — 3½ h.p. Minerva, 1907 model, new condition, with spares, good tyres; £17.

HAMPSTEAD.—2¾ h.p. Minerva, vertical, M.O.V.; £12; 26in. wheels, good condition.

HAMPSTEAD.—Griffon lightweight, 1¾ h.p., 1908, new; £30; with spring forks.

HAMPSTEAD.—5½ h.p. Kerry, twin, 2½ Palmer tyres, very low, splendid condition; £20, bargain.

HAMPSTEAD. — Four-cylinder F.N., splendid condition, with all spares; £25, bargain.

HAMPSTEAD.—1¾ h.p. lightweight 1907 F.N., spring forks and magneto; £24.

HAMPSTEAD.—Sole agents for Griffon motor cycles. 1908 catalogues on application; any of the above machines sent on approval (deposit); exchanges entertained.—Heath Street Motor Works, 5, Heath Street, Hampstead, London, N.W.

ENFIELD-MINERVA, 3½ h.p., spray, overhauled, new Palmers; cheap.—119, Gordon Road, Ealing.

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BEESTON Humber, 2 h.p., lightweight, Dunlops, condition excellent; price £7 10s.—James Wilson, 7, Slyne Road, Lancaster.

2¾ h.p. Ariel-Minerva, perfect condition, good climber, and fast; trial; £10 10s.—Motor, 12, Melville Street, Sandown, Isle of Wight.

REX, 1906, excellent condition, spring forks, lamp, horn, stand, tools, perfect order; £15.—Lisney, Skinners Lane, Ashtead.

SIX 1907 3½ h.p. Magneto Brand New Triumphs; £41 each; exchanges arranged. — Wauchope's, 9, Shoe Lane, London.

£6 10s.—2 h.p. F.N. lightweight, Chater-Lea frame, spray carburetter, good condition; seen running. — 201, Kentish Town Road, N.W.

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2¾ h.p. New Hudson, 26in. wheels, light and low, in good condition; no reasonable offer refused. — Wm. Beaumont, Bird's Royd, Brighouse.

7 h.p. Twin Peugeot, Chater-Lea, tyres sound, studded back, low, comfortable, grand condition, all accessories; £26.—Bryanston House, Leominster.

BARGAIN.—2¾ h.p. F.N., Chater-Lea No. 6 frame, 26in. by 2¼in. Palmer cords, footboards, brass tank, everything perfect; £13 10s.—5, Oakdale Road, Forest Gate.

2¾ h.p. M.M.C. Engine, Chater-Lea frame, long handles, Dermatine belt, F.N. carburetter, Guenet coil, two-way switch, two accumulators, low saddle; £10 10s., no offers.—Darke, draper, Sutton, Surrey.

TRIUMPHS, two 1907 3½ h.p. magneto models, very little used, absolutely perfect, guaranteed new condition throughout, complete with all accessories; inspection and trial invited.—Moss, Wem, Salop.

3½ h.p., built by Phœnix Motors, two-speed gear, starting handle, spring forks, footboards, Palmer cord, recently thoroughly overhauled, splendid condition; £25, or offers.—At Garage, 105, High Street, Southend-on-Sea.

1907 Rex de Luxe, 5½ h.p., twin tyres, Roc clutch, Advance pulley, new Watawata belt, spare Riche's detachable tubes, ridden 500 miles, perfect condition; 25 guineas, cash, no offers.—Brooke, 13, Downing Street, Cambridge.

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3 h.p. Quadrant, perfect; £9.—Below.

3¼ h.p. Rex, climbs mountains; £7 10s.

5½ h.p. Rex de Luxe, Roc clutch, twin tyres, like new; £25; cash or exchange.—Holmes, Millhill, Cowes.

MINERVA, 2½ h.p., Palmers, good condition; bargain, £8 10s.—1a, Frideswide Place, Kentish Town, N.W.

5½ h.p. N.S.U., spring forks, magneto, magnificent condition, perfect; £27 10s., no offers.—Milton, Market Street, Lancaster.

1907 3½ h.p. Triumph, magneto, supplied new October, not used 200 miles, guaranteed equal to new; £35.—Timberlake, Wigan.

4 h.p. Roc, Military Model, 2½ Dunlops, low, powerful, comfortable, and reliable, all spares; £23 10s.; trial.—Tuson, jun., Leominster.

1907 Twin Rex, magneto ignition, non-skid, spares, splendid condition; £25.—Particulars, Cutler, 201, Marshalls Cross Road, St. Helens.

3½ h.p. 1906 Bradbury, powerful, little used, two stands, horn etc.; £15 or exchange for lightweight magneto.—Bain, draper, Dalmellington.

3¼ h.p. 1905 Low Rex, Longuemare, Watawata, stand, carrier, spare cover, good condition; £13, or nearest.—28, Churchill Road, Hackney.

5 h.p. Twin Vindec Special, 1907 model, magneto, Truffault forks, adjustable pulley, extra heavy tyres; £30 cash (Warwickshire).—Box No. 9,130, *The Motor Cycle* Offices, Coventry.

3½ h.p. Rover, chains, free engine, M.O.V., Longuemare, two-way switch, two accumulators, 26 Palmers, stand, gas lamp, horn, spares, reliable; £16.—Hallett, Chagford.

3½ h.p. Minerva, 1907, not run 600 miles, two pulleys, Brooks B100 saddle, new Stanley belt, large lamp, three accumulators, new condition; £23.—Apply, Dobson, Kirkham, Lancashire.

£10.—2½ h.p. Simms-Bosch magneto, F.N. carburetter, Stanley Dermatine, handle-bar control, low seat, horn, stand, lamp, and numbers; deposit system.—65, Talgarth Mansions, Barons Court, W.

1907 Vindec Special, 3½ h.p., bought September, Simms-Bosch magneto, ridden 600 miles, well kept, and practically new, tyres unpunctured; buying twin; £32 10s.—Bright, 6, Cannon Hill Terrace, Kingston Road, Wimbledon.

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1905 3½ h.p. Rex, spring forks, splendid order, A Won tyres, new belt, accumulator, £14, or exchange, with two gents' pedal cycles, 24in and 26in. frames, tyres almost new, thorough good order, gold watch, and cash, for higher power, magneto preferred.—Park, clothier, New Cumnock.

STAMFORD HILL.—3½ h.p. Brown, £16; 5-6 h.p. twin Rex, £18; 4½ h.p. twin Minerva, £26 10s.; 3½ h.p. twin Werner, £16 10s.; 3½ h.p. Bat, £16; 3 h.p. Trent, £12; 3½ h.p. M.M.C., £11 10s.; 2½ h.p. Humber, £10; 4½ h.p. Kelecom, £16 10s.; 3 h.p. M.M.C., £11; 2 h.p. Rex, £8; all above are in very good condition, and can be tried at any time.—128, High Road, Tottenham.

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WARRANTED.—1¾ h.p. Minerva, £5; 2 h.p. Minerva, £7; 2 h.p. Quadrant, £8; 2 h.p. Standard, £8; 2 h.p. Werner, £5; 2½ h.p. Kerry, £9; 2¾ h.p. Antoine, £9 10s.; 2 h.p. magneto Simms, £9; 3 h.p. Hobart, £10; 3 h.p. Rover, £13 10s.; 3½ h.p. Rex, £9 10s.; spring fork Rex, £14 10s.; 5 h.p. Rex, £18; 3½ h.p. Kerry, £18 10s.; 2¾ h.p. F.N., £14 10s.; 2¾ h.p. De Dion, £14 10s.; 3½ h.p. N.S.U., magneto, spring forks, £24; Rex de Luxe, £29; twin Werner, £16; twin N.S.U., £25; 3 h.p. M.M.C., £13; 3 h.p. Humber, £11 10s.; 3½ h.p. Minerva, £18 10s.; soiled, £23; 3 h.p. Automotor, £10 10s.; twin Alcyon, £22; 1½ h.p. Minerva, £4 10s.; 1¾ h.p. Quadrant, £5; 3 h.p. Lloyds, £14 10s.; 2½ h.p. Excelsior, £6; 4 h.p. Coronet, £16; cash, exchange, or extended payments.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

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HALIFAX.—6 h.p. twin-cylinder Advance tricar, wheel steering, only used for trials; bucket seat; £35.

HALIFAX.—5½ h.p. Rex Triette, spring frame, free engine clutch, very reliable; £29 10s.—Below.

HALIFAX.—3½ h.p. Rex Tricar, Phœnix two-speed gear, good running order; £21.

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HALIFAX.—6 h.p. twin Antoine tricar, a real gem, open frame, three speeds, wheel steering, chain drive, foot clutch; £39 10s.

HALIFAX.—4½ h.p. Rex tricar, two speeds, free engine, very good order and condition; £21.

HALIFAX.—4½ h.p., water-cooled Wolf, two speeds; £37 10s.; condition almost new.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built, four-speed gear; £37 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

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FOR Sale, Lagonda, 10 h.p., water-cooled, overhauled, new tyres last Autumn.—Apply, Mitchell, 110, Radford Road, Nottingham.

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FOR Sale, Raleighette, 3½ h.p., water-cooled, two speeds, best condition, wide forecar, new tyres; accept £35.—Mitchell, 110, Radford Road, Nottingham.

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STOP!!—Do not send for new tyres until you have my list, in which we list Continentals, Clinchers, etc., and allow for old tubes and covers in part payment; 1d. stamp. — Maude's, Lilly Lane, Halifax.

TYRES, 26 by 2¼, new, beaded edge, steel studded, Gaulois covers, 19s. 6d.; 26 by 2, ditto, 18s. 6d.; 26 by 2⅛, wired-on Gaulois cover, 14s. 6d.; 28 by 2½ heavy beaded edge covers, 12s. 6d.; 28 by 2¼ ditto, 12s.; approval.—West, 11, Seymour Place, London, W.

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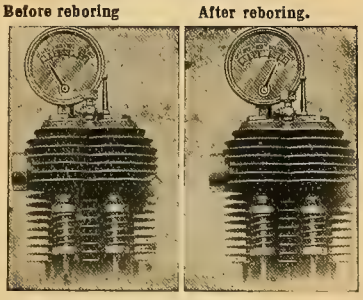

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9, Shoe Lane, Fleet Street, London.—Wauchope's arrange exchanges; second-hand motor cycles taken in part payment for 1908 models as Triumphs, Vindec Specials, N.S.U.'s, Quadrants, F.N.'s, Ariels, Minervas, Rocs, etc.

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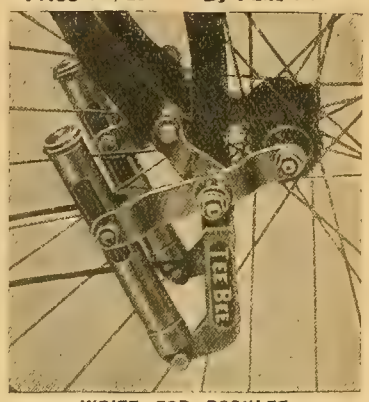

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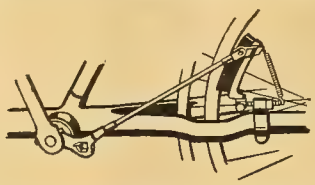

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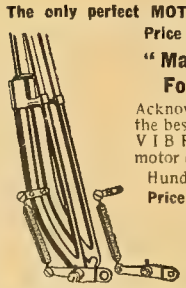

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WANTED, good motor cycles; cheap for spot cash.—5, Heath Street, Hampstead.

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WANTED, Siren for motor cycle, front wheel.—Abell, 166, High Street, Sevenoaks.

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WANTED, 319 Motor Cycle Lamp, Lucas; approval.—Webster, Bowyer Road, Saltley, Birmingham.

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WANTED, 2 h.p. Minerva; exchange 1¾ h.p. vertical, suit lightweight.—Morris, Besthorpe, Attleborough, Norfolk.

WANTED, good tricar, free engine, two-speed; offer motor bicycle, and lantern outfit.—C. N. White, St. Neots.

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WANTED, Triumphs, F.N.'s, N.S.U.'s, Minervas, Quadrants; spot cash.—Captain, 165, Aldboro' Road, Seven Kings, Essex.

WANTED, 100 second-hand motor cycles, in part payment for new 1908 models.—Wauchope's, 9, Shoe Lane, London.

WANTED, latest Triumph motor cycle and cash, for 8-10 h.p. Cadillac car, model A., four-seater.—The Library, Buntingford, Herts.

WANTED, treadle S.S. 6in. Centre Lathe and cash; exchange two-seated 7 h.p. car, or sell £35.—McDonald, 11, Dunn Street, Paisley.

WANTED, your old motor cycle, in part payment for either a new 1908 model of any make, or a second-hand mount.—Lilly Lane, Halifax.

TRICAR, about 6 h.p., Riley, Phœnix, or Singer; particulars, photo, or illustration.—9,127, *The Motor Cycle* Offices Coventry.

4½ h.p. De Dion water-cooled engine good condition, exchange 2 h.p. Minerva bike.—Nicholls, 217, Chichester Road, Portsmouth.

WANTED, good modern motor cycle, exchange lady and gent's first-grade two-speed cycle, London.—9,129, *The Motor Cycle* Offices, Coventry.

THE MOTOR CYCLE

Vol. 6. No. 256. Feb. 19, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

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Preparations for the End-to-End.

By B. H. DAVIES.

'T is early days to talk of the End-to-end, but the A.C.U. has definitely announced its intention of repeating the famous ride, and no event ever attracted such a concourse of amateur entrants. 'urther, though intending entrants may be unaware of , the surest foundation of their success can—I had lmost said "must"—be laid now, and not later. I m writing these notes to save other amateurs making ie great mistake I made myself in relation to the first f these runs—that of 1906. The amateur's success epends far more on his having a machine that he nows than on his having a superexcellent mount. Consequently amateurs should either enter their 1907 iachine or get as early possession as possible of their 908 mount. I had rather myself enter a 1¼ h.p. linerva than a slap-up 1908 model on which I had nly time to cover a few hundred miles before the fficials time it away from the Land's End Hotel at .30 on a bright summer morning.

Anticipating Minor Derangements.

Amateurs often imagine a trade rider has far less nxiety and trouble than they have in earning a premier ward in such a prolonged contest. Sometimes this s true, sometimes false. If it is true, it is because e knows his machine so thoroughly before he starts iat he can *anticipate* little minor derangements and ower breakages, and spend the precious, and often to ie amateur all too brief, hour before breakfast each iorning in verifying the perfect condition of every etail that may conceivably call for attention during ie 150 to 200 miles he must cover before evening. In other cases, the trade rider actually has as many dismounts *en route* as the amateur, but, knowing his machine through and through, he has less *delay*. He hops off, goes straight to the deranged detail, restores it to perfect order with a deft touch or two of his fingers, and is off again, with only a few seconds delay; whereas the amateur, who is making acquaintance with many parts of his mount for the first time, is surveying the entire machine with an agonised expression, dismounting portions of the mechanism that are as right as rain, and generally wasting time, and, what is worse, losing his head, as the precious minutes pass beyond recall. There are both amateur and trade riders who get through their thousand miles without a dismount, or without loss of power; but these are the darlings of fortune; and fortune is capricious above the common run of females. The point is, you must not rely on the manufacturers to carry you through by delivering to you a good machine in perfect tune, so constructed that it will last through a thousand miles. This is the type of rider whom Fortune makes her helpless prey about forty miles from the finish, stealing from him laurels that would truthfully have been hers, and not his, if secured. The man who gets there every time is the man who knows his machine, and is competent to compel it to his will, however whimsically and perversely it may choose to flirt with him.

A New Machine Not Necessary.

The moral of all this is that amateurs should either enter their well-tried and well-known 1907 machines for the End-to-end, or, alternatively, should place a

Preparations for the End-to-end.—

February order for a 1908 machine, and ride it all they can before June, leaving ample margin to tune it back again to its pristine excellence before they have to leave Penzance. In 1906 I deprived the run of comfort for myself by electing to compete on a machine I had scarcely seen till I started from the far North to Penzance by road. I was in trouble all the way to John-o'-Groat's, and if the ride was full of pleasure for me, it was of that sporting and exacting sort which consists in snatching a hard won victory over circumstances which seemed likely to defeat me right up to the final half-mile sprint down to the beach of the Pentland Firth.

I propose to add a few suggestions for those who intend to ride 1908 machines. The machine must be as simple as possible, a thorough good hill-climber, steady on grease and fairly fast, and the lighter it is, consistent with power, the better. In 1906 we only had sixty miles of grease all told. The cycle of luck is not going to give the entrants such easy roads all through again. Therefore the machine should be easy to hold up, and so I advise a good single-cylinder in preference to a twin. Some of the End-to-end can be abominably treacherous, and some of the twin-cylinder riders had swollen wrists at Inverness in 1906 after a few miles of grease. I should advise rubber studded tyres. The tubes may need patching before the run is over, and speed melts off hastily affixed patches when the tread is steel and leather. The hills on the course are mostly contemptible from the speed trial point of view. But taken in one's stride on a 200 miles run, when the machine has been gradually losing a trifle of power daily for a week, some of them may loom formidably. Hardly a man but walked portions of one or more hills in 1906, and this applies to crack riders on big twins on the very first day's run. Therefore an adjustable pulley or a two-speed gear will be grateful and comforting at some portion of the route. The machine must further b fast. There are many deserted patches along the route and when a couple of punctures have lost one half a hour at the very commencement of a forty miles con trol, time requires to be made up. My 1906 machin was too slow to take advantage of such opportunities and as a result, meek and mild driver as I am, I migh have been seen careering through villages at twent miles an hour in a condition of great fear and shame simply because I could not go faster than thirty mile per hour in the open country.

Headwinds and Power.

Wild head winds are common up north in June though they were not encountered two years ago, an the machine must be able to cope with them. If th winds I have often known in June come raging dow between the Grampians during the trial, they will auto matically weed out every lightweight entered that ha the most trifling stop on this section. Hence the nee of having the machine at the top of its form in thos regions is easily apparent.

Again, the machine must be one that is under n suspicion, however remote, of "overheating," whateve overheating may really be or not be. June is ofte oppressively sultry in Cornwall and Devon. Th very first day may be like it was two years ago— glaring sun beating down on a breathless, sun-bake land. If a machine ever overheats, two hundre miles of hilly country on such a day will overheat here, and the riders sleep at Taunton (199 miles fro Land's End) on the first night. Here, again, th dust, with eighty men on the road, may be terrific and gauzes to the carburetter orifices are almost necessity.

So I repeat there is no machine I would sooner sta upon than a 1907 single cylinder of good make, wit many a peaceful mile laid over its shoulder alread and familiar to me from tyre valve to lamp bracket.

Motor Cycle Tyres and Accessories.

DISCUSSION ON MR. COVE'S PAPER (*Concluded from page 128.*)

Mr. A. C. Pemberton mentioned that hedger's gloves, such as referred to by the previous speaker, could be obtained at any ironmonger's. In the matter of tyres, he considered that motor cyclists had been scandalously treated until about a year ago. Rubber belts were as good as could be wished for. The great fault of leather belts was that they would not stand the wet weather; when soaked with rain they commenced to slip. Speaking of lamps, he said he believed he had used one of the first acetylene lamps made in this country. He read about them in a French paper, and made one for himself out of two treacle tins. He agreed with Mr. Cove's remarks about saddles. Whenever you get a good one that suits you stick to it as long as it will hold together. You cannot buy saddles to fit you. It is only after use that they suit the seat of the particular rider.

Mr. Victor Hart said he had been greatly interested in the paper. Mr. Cove must have gone to a great deal of trouble to collect all the samples and information about them that he had given. The paper was the result of actual road experience. His remarks were just what was wanted. Going back to the early days of the motor cycle, he said he rode at first a machine that gave him a terrible amount of trouble with the tyres. They were continually bursting; in fact, to such an extent, that he used to carry about a large canvas bag filled with pieces of tubing, some of them a dozen inches long, and various other things, such as a large pair of scissors. He complained to the makers about them, but they repudiated all responsibility; they were the best they knew how to mak He suggested to them that the covers did not fit the rim but they proved by measurements, etc., and went to a gre deal of trouble to show they did fit the rims, and, therefor they could not help him, so he had to help himself. E devised a remedy which consisted of a flap exactly like th Goodrich flap. He rode the machine for eighteen mont afterwards, and had little trouble with bursts and puncture Another point in regard to this flap of the Goodrich tyre that it would save the tube getting nipped when putting th cover on after the tube has been partially inflated. With rega to gloves, the best he had come across were made by Fowne They had leather palms, knitted wool backs, and knitted wo gauntlets, and cost 2s. 6d. or 2s. 9d. a pair. They are war and comfortable, and would outwear two or three pairs of an other ordinary gloves. They kept the wind out, and if the got soaked with rain they soon dried again. On the questic of non-skid treads, he thought the Goodrich tyre had a ver great future, because the rubber studs wore much bett than steel when they came in contact with the road. Th same thing was illustrated by the well-known rubber hee fitted to boots. Rubber heels would wear out three or fo pairs of steel tips. The little rubber studs on the Goodric tyres would run for 5,000 miles before wearing down to th base of the tread. As to clothing, he had tried almo everything. He would like to give a useful tip to those wh were out riding late in the cold evenings without prope

tor Cycle Tyres and Accessories.—

rm clothing, as, for instance, when they were delayed on road. Try a large sheet of brown paper underneath the er garment. Make a hole through the middle of it for the d and wear it on the chest and back. To protect the legs, other sheets of brown paper may be placed inside the s of the trousers. He certainly thought that rims should standardised. Motor cyclists should approach manufac-ers on this point, and try and persuade them to adopt a ndard rim, so that all makes of tyres should be inter-ngeable. The American manufacturers had formulated a ndard for motor cars rims, so that you could buy any tyre l be absolutely sure that it would fit the rim. He trusted committee of the Auto Cycle Union would consider this stion of the standardisaton of rims at an early date.

Mr. H. G. Bell endorsed Mr. Wells's remarks on the ject of inflation of tyres. He always rode with his front e soft, or what some people would call soft. He had ridden a machine with Palmer tyres blown up hard, and it was e riding on a solid tyre. Speaking of belts, he said he ays used a rubber belt now, but if we could get a good paration for leather belts it would be a satisfaction. An erican solution was brought to his notice by the Daimler ple, which cleaned the surface of the belt admirably. As gloves, he spoke of his experience in the use of hedge-ter's gloves, which were satisfactory. On the question of ps he related how he fixed a magnifying glass of about n. diameter in front of his lamp by means of a couple of s of sheet brass. This lens had the effect of throwing light on any object in front of the machine. He found it st useful in running from London to Edinburgh. It threw light ahead, not sidewise, and acted as a sort of search-t straight ahead. It was a crude contrivance, but answered y well indeed. On the subject of stands, a friend told about a stand he had devised and fitted to the front wheel his motor bicycle. It had two arms fitted to the front e, and when the front tyre punctured he could jack up the eel, and he found the stand quite a boon to him in ting at the front tyre. As regards clothing, he was one those who wore leather, although he admitted it was rather reputable-looking, especially the trousers when they got ck and greasy. He often wore a leather body coat and ther coat over it. In the London to Edinburgh run he nd that his knees got very cold. Since then he had worn ling stockings over his knees, and found them very com-table and warm. He disapproved of mackintosh clothing. had worn mackintosh, but found that his under-clothing soaking wet, and the inner surface of the mackintosh ame wet also from perspiration.

Mr. A. G. Reynolds agreed that the paper had been most eresting and the discussion quite an experience. In riding r greasy roads he always went as fast as he could; he nd that to be the surest way of preventing side-slips. He t his engine going, he rode straight, and went quickly, had never had a side-slip, though he used smooth tyres. quite agreed with Mr. Wells regarding the inflation of es; hard tyres meant loss of comfort, and soft tyres were advantage, especially in riding over greasy roads. He never had any trouble with punctures; he supposed it s due to the thickness of the treads. He made a sugges-n which he thought would overcome the difficulty often erienced in placing an inner tube in the cover, to know ether it was twisted or not. After blowing up the tube, made a line right round the whole length of the tube h an indelible copying pencil, and in fitting the cover into rim this line was a guide as to whether the tube was sted. He always made sure that the line was level with rim; he always put a large amount of French chalk on tube. Adjustable pulleys were an accessory that was ning before the motor cycling public a good deal just now, they had come to stay; he regarded them as a most uable accessory. As regards rubber belts, he found that y required more power to drive than a Watawata belt. was not able to get up an average hill so easily with a ber belt; it absorbed a certain amount of power. With ard to acetylene lamps, he thought he was one of the first, not the first, in this country to use one; he had one lent him by Mr. Sharp in 1899. But he had learned that ning that Mr. Pemberton had made one of his own before t date. With regard to reflectors, he always bought half dozen extra ones, so that he could take out one and put another when it got tarnished. They were very cheap. A ge extending carrier was a useful thing to have on a machine. The stand was a separate thing, but was a very great help when you wanted to do little repairs on the road. As to saddles, he tried a pan-seat, and did not want to go back to saddles; he had never ridden anything so comfortable. It left no soreness after a long ride. He found it the best seat he could possibly wish for. With regard to tool outfit bags, he carried two or three, one for general tools, another with valves and spares—which were not often wanted—and two small bags, one of which was for repair outfit only. A petrol filter was a very nice thing to have, as you then knew the carburetter was kept clean. One valuable accessory not touched upon in the paper was an efficient speedometer. In regard to clothes, he had tried nearly all kinds, but had never tried leather except for breeches, and then only on the Edinburgh run to keep himself warm. He did not advise mackintosh clothing; he recommended a good flannel body belt, which also acted as a support. It was not only comfortable, but very warm. Anyone who tried it would never leave it off. He always wore an ordinary lounge tweed suit. He agreed that hedge-cutter's gloves were excellent things to wear. He used leather gauntlets upon them, which were extended up the sleeve inside. If the gauntlets were worn outside the sleeve, the rain and wind got in and made the hands cold.

Mr. M. J. Tuchmann joined in thanking Mr. Cove for bringing the subject of his paper before the members of the A.C.U. It had been very well said that trifles make perfection, and so proper attention to the accessories of the motor cycle made it perfect. Good engines and good frames and so forth were necessary, but every detail had also to be carefully attended to. He carried the memory of the audience back to the days of the wired-on tyre. In his opinion, a 2in. wired-on tyre was about as efficient as the modern 2¼in. beaded-edge tyre, with beaded edge inside the rim. One of the most important things was to have a stout fabric, otherwise bursts were practically certain. He thought motor bicycle tyres should be built on stouter lines. As regards the corrugations on the treads, they were very efficient so long as they were there, but after a time they wore away. He compared the various makes of tyre in respect to their treads. He thought all the samples shown were more or less excellent. As for the inflation of tyres, he thought that the well inflated tyre wore well; he thought it better to err on the side of over-inflation. He had only once burst a tyre by over-inflation, and that was not on a motor bicycle. As to belts, he considered the rubber and canvas belt the only possible one. It had no serious disadvantage. The belt had a tendency to assume a certain shape. The use of vaseline was to be recommended for leather belts; it kept them supple. He considered that one of the best things they had seen that evening was the new Stanley fastener for belts; he thought it would be greatly used this year. He endorsed what Mr. Boileau had said about lamps. A good lamp was obtainable for about 5s. or 6s., and in the speaker's opinion the search-light pattern would not come into use, as it was too expensive. With regard to generators, it was rather hard that motor cyclists should have to make their own fixings. Why should not makers turn out machines with generators fixed, or at any rate provide a place for fixing them? He had only seen one or two machines with good fixings. The generator was generally placed on the fork side. He thought in the future generators would be permanently fixed to the machines. The best hooter he thought was the one that made the most noise, and it should be fairly shrill, because the shrillest would gain the most attention. The syren took up far too much room; the exhaust whistle was a cruel abomination. As for carriers, those now made were not big enough in his opinion. The danger with a loaded carrier was when it projected too far behind, as it encouraged skidding; there was rather too much tail to wag. They certainly ought to be made broader. With regard to stands, these were mostly fixed to the chain stays. Motor cyclists did not take much trouble with their saddles as a rule. He thought they needed more attention; the application of soft soap was a good thing to keep them clean and supple. He rather liked the rubber handle grips that were shown. He thought tool-bags ought to be a good size to carry all that was wanted, including spare tubes, etc. The bag should be of stiff leather with collapsable top. He did not think a petrol filter was necessary. As regards clothing, he admitted he was rather a faddist. He believed in all-wool as far as possible. During the late cold weather he had been riding every week-end, and had worn Jaeger clothing and thickly-knitted wool stockings,

Motor Cycle Tyres and Accessories.—

boots not necessarily thick because leather is windproof, double flannel collars made of Viella; this was limp, but quite neat enough. As for breeches, he had a pair made for him absolutely windproof and practically rainproof, made of Scotch tweed which had been treated with waterproof preparation and lined with Burberry. Leggings of ordinary leather certainly kept the calves warm. He did not find ordinary waterproof overalls so bad, as there was little perspiration, if any, in riding a motor bicycle; then, of course, the waterproof is lined with Burberry, which is all wool. On his wrists he wore ordinary mittens. Goggles had not been mentioned. He found it difficult to get a pair to fit closely; he thought it essential that they should do so to protect the eyes from the wind. He had not solved the glove problem yet. He found mittens kept his hands warm; thick gloves interfered with the grip of the handles. He had been very much impressed by the advances made in some of the tyres shown. He also admired the neat little belt fastener. Mr. Cove deserved the thanks of all the makers of these accessories.

Mr. E. J. Chapman spoke of luggage carriers on motor bicycles. He liked to go away for a week-end and take sufficient luggage for the time. The accommodation for carrying this was inadequate on most machines. Most motor bicycles only had a flimsy arrangement for luggage. He fitted on his own machine a luggage carrier of ⅝in. half-round tube. It was very strong—in fact, anybody could sit on it—and being fixed on behind it was useful for pushing the machine up a gangway if it had to be put on board a ship. The little makeshift carriers usually put on motor bicycles soon got broken. As regarded spring forks on motor bicycles, before they came into vogue the joints became loose, the petrol leaked, little screws came out, in fact the machine began to fall to pieces; but since spring forks came into use this vibration was done away with. This question of spring forks was more important than tyres.

Mr. C. Wilkinson said he used to ride fast on greasy roads, but he never did so now. His experience taught him differently. He did not agree with Mr. Chapman about taking a lot of luggage. He always had his sent on by parcel post, and called for it on his arrival or had it sent to the inn where he put up. With regard to toolbags, he had one of his own design. He had no pedals on his machine, and this toolbox was under the footboards; in fact, he had a little cupboard on each side. His engine was 5½ h.p. He found a cricketing belt a good thing to wear; it pulled him together and felt very comfortable.

Mr. W. Pratt added a few words as to his experience of tyres and rims. He also spoke of a speedometer he had used.

Mr. H. R. Dougall did not see the necessity for a cyclometer; he always measured his distances by using a good road map.

The Chairman (Mr. S. F. Beevor) did not speak at any length on account of the lateness of the hour. He thought they were very lucky in having such a paper read to them by a member whose experience had been so great. Mr. Cove spoke from the best possible point of view, namely, that of a keenly interested motor cyclist of many years' experience. They had also had an interesting discussion; those members who had spoken from a trade point of view had given some useful observations. Certainly he welcomed the views of trade members. If it had not been for the trade he did not know what would become of the motor cycle movement. As to the standard rim, he thought the A.C.U. ought to take up the matter, and no doubt would do so. Most of what he intended saying had already been said; he would, however, add a few words. First, as to the leather belt, he had found that pure castor oil was a good thing to rub on to keep the leather supple; he used it, and found it was the only thing that kept the driving belt in order. As to leather clothing, his opinion was not favourable. Leather suits were invented not to keep out the cold, but to enable the rider to be put under a pump and washed at the end of the day's journey. Leather clothing was first worn in the early days of motor cars, when everything connected with the management of a motor car made you dirty. He had himself helped to work the handle of a pump to pump water on a man who was begrimed after a day's journey in a motor car. After washing off the dirt the motorist presented a respectable appearance.

Mr. Cove replied to the various criticisms, and thanked the members present for the kind way they had received the paper. He particularly thanked Mr. Wells for the help he had given him in collecting materials for the paper. It had been a labour of love so far as he was concerned. His connection with bicycles extended back to his very earliest years he might almost say he began to ride one of the old-time "boneshakers" before he could walk. At any rate, since he was ten years of age hardly a day had passed without ridin a machine of some kind or other. His idea in writing the paper had been to learn something, quite as much as to im part instruction, and the discussion had certainly been in structive. If he had given out any ideas, he had also learne something from the variety of views and opinions that ha been expressed. He differed from Mr. Wells about the infla tion of tyres. If a small tyre was pumped up hard you ge vibration, but if you pumped up a big tyre till it was har you would not get it. He agreed with Mr. Victor Hart tha the Goodrich tyre was a thoroughly good one. As to fron wheel stands, he never found much use for them, as it wa very seldom the front wheel punctured. Though sever speakers had stated that they considered petrol filters useles he still maintained his opinion that they were very goo things. Like Mr. Reynolds, he always wore an abdomin belt, and found great comfort in doing so. It was also great protection from cold. He had worn tennis collars fo comfort, but he thought their appearance was most untid Electric lamps had been suggested, but they were very u reliable on account of the filaments continually breaking. conclusion, he said, "If you have had pleasure and enjo ment this evening I can only say these have been qui mutual."

A vote of thanks to the chairman concluded the meeting the unusually late hour of 11.30 p.m.

An Infinitely Variable Gear.

AT the Stanley Show last November the Zenith spring frame created a great deal of interest, and it was this particular frame to which reference was made in *The Motor Cycle* as early as last spring. Our readers will remember that it is one of the few spring frames which insulates the rider from road shocks, especially as regards the rear of the machine without altering the belt tension, and is equally efficient in absorbing any vibration there may be from the engine. The fertile brain of Mr. F. W. Barnes, Zenith Motors Ltd.'s designer, has now been responsible for an even more important invention in the shape of a gear which is infinitely variable between two points. Previously several attempts have been made in this direction, but all have necessitated the employment of a jockey pulley, which puts an unfair strain on the belt, and also absorbs a considerable amount of power, while with them th difference in ratio between the highest and lowest gea has not been sufficiently great. The Zenith gear, ho ever, entirely does away with these objections, since it always "direct," and consequently the same efficien obtains whether a high or low gear is used, and the ge ratios range from 3½ to 1 to 9 to 1, thus enabling ve high speeds to be maintained on the level and on falli grades, or when travelling before a strong wind, and y allowing the severest gradients to be attacked with i punity. A reference was made to the gear in our la issue, but a detailed description may be of interest to o readers. Fig. 1 shows the general arrangement.

The change of speed is effected by means of the ha wheel G attached to the shaft B, connected by means a chain running over a sprocket F, and another sprock

An Infinitely Variable Gear.—

attached to a corresponding shaft on the opposite side of the rear wheel—not shown. On the shaft B is cut a worm, which is screwed into the long nut or plunger C, which carries the rear wheel axle A. This plunger and its duplicate in the corresponding tube, which contains a like mechanism, are substantial and long, and thus prevent any side play, sliding as they do in lugs, which are slotted horizontally and allow the wheel to move backwards and forwards. As the movement is imparted by means of the wheel G and worm to the plungers C, the rocking lever E, pivoted above A and situated on the near side of the machine, is moved forward, and by means of the connecting rod H moves the lever U connected to an expanding device on the engine pulley, causing it to expand or contract, according to whether the operating wheel is revolved clockwise or contra-clockwise, so that as the pulley expands the rear wheel is pushed further away, and when it contracts the wheel is brought nearer to the engine, with the result that whatever gear is used the belt tension remains constant.

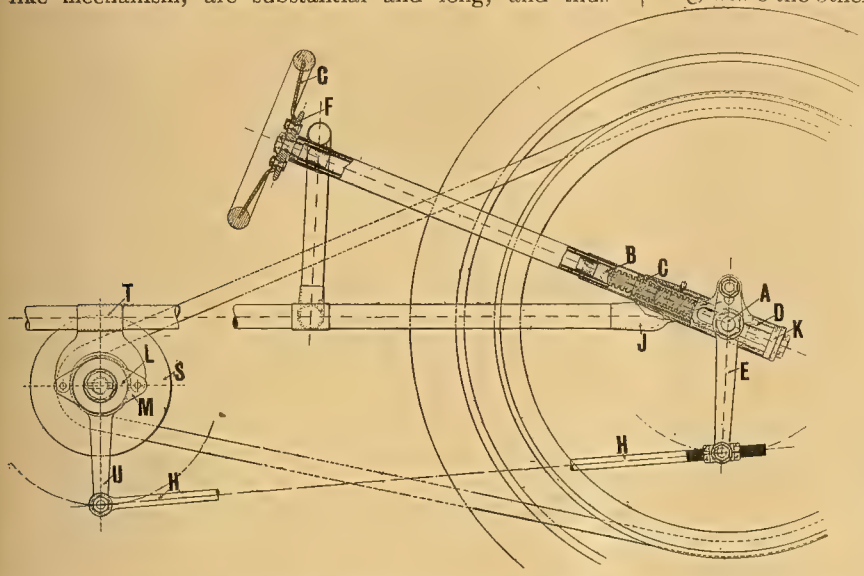


FIG. 1.—PART SECTIONAL ELEVATION OF OPERATING GEAR.

A. Driving wheel axle. B. Worm shaft. C. Nut or plunger sliding in socket and threaded to receive worm B, also screwed on axle A. D. Working face for lever E, on lug J. E. Rocking lever operating variable pulley. F. Chain sprocket. G. Hand wheel. H. Connecting rod between E. and U. J. Frame lugs for plunger C. K. End cap. (For lettered inscription of engine pulley see under Fig. 2.)

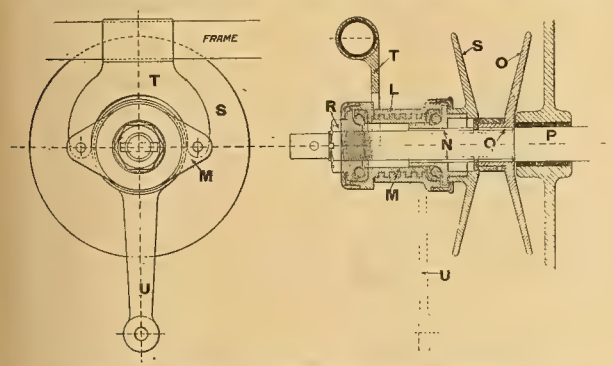
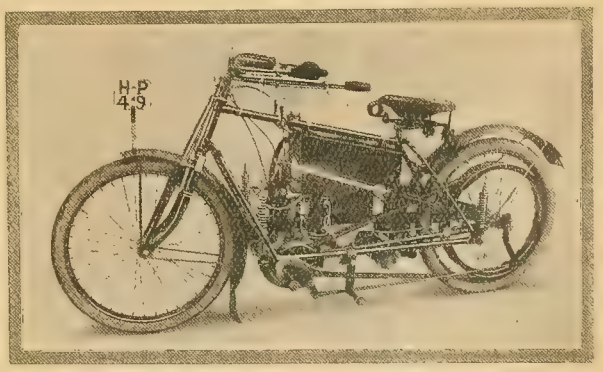


FIG. 2.—SECTIONAL END VIEW OF VARIABLE PULLEY.

P. Engine shaft. O. Fixed pulley flange. S. Sliding pulley flange. Q. Key for securing O on engine shaft. L. and M. Nut and screw with square thread for expanding and contracting diameter of pulley. N. Keys on shaft for driving sliding pulley flange S R. Lock nut. T. Bracket on frame to prevent M from turning. U. Arm for operating nut L.

The expanding pulley, fig. 2, is well designed, since in it all end thrust on engine shaft is absent, as it is self-contained and runs the whole time as a solid pulley. Suitable ball thrusts are arranged each end of the operating screws L and M. One pulley flange O is attached to a shoulder on the crankshaft P by means of the key Q, while the other pulley flange S is free to slide horizontally on the key N, being operated by the quick pitch screw and nut L and M. Of the two ball thrusts the one at the extremity of the crankshaft is adjustable, so that any wear which may occur may be taken up. It is locked into position by the nut R. The screw M is prevented from turning by means of the bracket T attached to the frame. The nut L is turned by means of the lever U, and, moving horizontally, it pushes or withdraws the flange S on its keys N.

From the above description it will be seen that the gear is both simple and ingenious. The engine may be started up by means of a handle; and when in the free engine position the belt runs on the loose ring at the bottom of the pulley. During the short time the machine was in our hands the gear did everything which is claimed for it. To start from a standstill the engine had only to be accelerated very slightly, and when the operating wheel was revolved clockwise the drive was taken up both smoothly and effectively. In negotiating Muswell Hill by no means the lowest gear was used, and yet the machine gathered speed as it went up. In the later models the operating wheel is placed beneath the saddle, which is found to be the most convenient position. The wheel remains exactly where it is put, and needs no quadrant to hold it, while a very slight alteration makes a wonderful difference on a hill, as the moment the engine labours and the wheel is turned an immediate engine acceleration is apparent. With a little practice hills can be negotiated while ignoring the spark, throttle, and air levers, and by altering the gear alone, thus keeping the engine pulling at its maximum efficiency all the time. In a short time we look forward to putting the machine to further tests.



The Zenette Motor Bicycle, fitted with the variable gear, described in the accompanying article.

THE London to Edinburgh Run of 1907.

By ARTHUR W. BENTLEY. (Concluded from page 121.)

I will not weary readers with a detailed account of the ride from Scotch Corner to Newcastle, as I am sure it would entirely fail to interest them. Suffice it to say that, after mending a puncture about six miles outside Newcastle, we rode into this famous city at about one o'clock, heartily glad that we had finished this uninteresting part of the journey.

The chief features of Newcastle from a motor cyclist's point of view are awkward turnings, granite setts, a network of tramlines, and an abundance of people congregated in groups all over the road, or else dashing out from the side just ahead of our machines, causing almost hairbreadth escapes.

Hot and perspiring, we arrived outside the Grand Hotel, Barras Bridge, where lunch had been provided for us, and in a few more minutes we forgot the last thirty miles run in the joys of a good meal.

There was little spare time after lunch, and after filling up, and this time oiling my magneto, we were outside ready to start on our next stage of sixty-two miles into Berwick-on-Tweed.

Northumberland Police at "Work."

Before leaving we were warned of two police traps a short distance down the road, and in consequence for the next ten or twelve miles we travelled at a very sedate and moderate speed, which even the wonderful and ever expansive imaginations of the police could not possibly construe into a breakneck speed of sixty miles an hour, as they are wont to do.

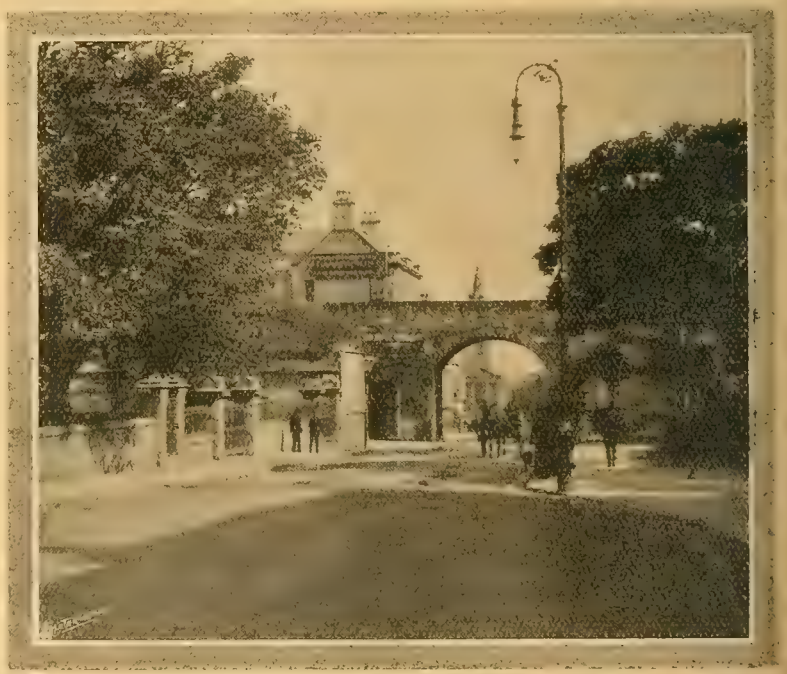
After leaving Morpeth (283) we opened the throttle wider, and at 3.15 we passed through Alnwick, where we were checked by a M.C.C. official. Turning to the right out of the town, and leaving the fine old castle on our right, we crossed the bridge, and, turning sharp to the left, encountered a very stiff rise, which called for all our pedalling powers, as we had shut off at the bottom of the hill in order to negotiate the sharp bend in safety. Hereabouts the country was very beautiful, and as the roads were far from bad, and our machines appeared to be running even better than ever, we made light work of the somewhat formidable hills that abound, and shortly before four o'clock we reached Belford, with only about sixteen miles separating us from the old-fashioned town of Berwick-upon-Tweed.

For some reason I cannot explain I had always been very anxious to see this little place, and I looked forward to my arrival there with considerable eagerness.

The competitors that we met hereabouts all seemed to be in the best of spirits as we were nearing our journey's end, only about seventy miles separating us from Edinburgh.

As we were rather keen to have a little spare time in Berwick, we made good running from Belford, and at about 4.40 ran through Spittal, which is the little village on the south side of the River Tweed. Turning sharp to the right, we rode over the narrow bridge that spans the river, and which is the link between England and Scotland on the East Coast road.

Running through a narrow little street, we turned to the left up a steep hill, about halfway up which we were greeted by the majority of the inhabitants of the town, grouped outside the inn where we were to stop for tea. Oh! how good those meals were after each long stretch of riding, and how they refreshed us when we were feeling a bit fagged and tired. After a pipe



The road out of Berwick-on-Tweed, showing the High Street and ancient gateway.

The London to Edinburgh Run of 1907.—

on the right side of a good tea, we felt quite fit for the last sixty miles into Edinburgh.

Although there was still plenty of time for a breakdown we had no anxiety, and were confident that we should be among the survivors, as our machines were still running splendidly. It is marvellous how the comparatively diminutive engines with which motor bicycles are fitted should continue to run mile after mile, uphill and down dale, over good roads and bad, without the slightest falter or misfire, and let those who question the reliability of these machines just note how many of the really recognised best makes of machines come through these long trials, all of which are severe tests. I think that the 1907 M.C.C. London-Edinburgh run proved more than any former trial has done what a really reliable little machine a motor bicycle is.

The Last Stage of the Trial.

The sun now deigned to put in a tardy appearance, as if in an endeavour to display in its fullest grandeur the magnificent scenery of the next forty or fifty miles. On reaching the crest of the hill out of Berwick, a wonderful view opens out. On the left the Scotch farms and lands stretching away inland as far as the eye can reach, and on the right a vast stretch of the North Sea, illumined by the setting sun, and dotted here and there with the fishing smacks making their way into port, their sails glinting in the light of the setting sun as they kept tacking against the fast-dying wind. We could not restrain ourselves from dismounting for about five minutes in order to thoroughly appreciate the rare beauty of the scene.

After running along by the coast for some distance, the road breaks away inland, only to join the coast again at some point further on. And so it is for the greater part of the journey through Cockburn's Path and Dunbar into Levenhall, which is the last stopping place before the triumphant entry into Edinburgh. As we rode through the scattered villages, there was the invariable little crowd to cheer us as we passed; in fact, the great interest evinced in this trial all the way along the route was very noticeable.

After leaving Haddington, we began to realise that nothing, bar an accident, could snatch the coveted gold medal from our grasp.

It was 7.30 p.m. when we pulled up outside the Freeman's Hotel, Levenhall, only six miles away from the Royal Hotel, Edinburgh—the finish of our 400 miles' ride.

There is rather a tedious delay here, but it is quite unavoidable. The M.C.C. authorities pursue a very wise course, as, by enforcing a somewhat long stoppage at Levenhall, most, if not all, of the competitors who are still in the running, have arrived by the time we are due to start. A large crowd had gathered at Levenhall, and quite a number of the local cyclists, motor cyclists, and autocarists turned out to escort the successful competitors into Edinburgh. The police had their hands very full in keeping the road clear.

The Procession of Successful Competitors.

A few minutes before eight we were ranged behind the pilot car which was to lead us into the town, and ahead of which we were not allowed to ride. This is a very good plan, as it prevents the racing that otherwise would inevitably take place. The procession commenced, but my engine refused to fire, despite much coaxing and pedalling. Was I to fail with a medal almost within my grasp! I was forced to ignominiously dismount in the midst of the crowd and put my machine on the stand. I at once noticed that the old plug had shaken very loose, and, hastily replacing it, the machine was soon throbbing merrily over the granite setts and tramlines that mark the approach into the town.

The roads between Levenhall and Edinburgh were crowded, but on reaching Prince's Street the road was so tightly packed with people that I was compelled to dismount and slowly push my way through them.

The first arrivals at Levenhall have to put up with this kind of thing. The photographer shown made two exposures to make "sure," and then nearly wept because he had taken both on one plate in his excitement.

After proceeding in this somewhat laborious manner for some little distance, I was at last gladdened by the lights of the Royal Hotel, and began to realise that the goal had been reached.

After signing the check sheet, which was by no means an easy matter on account of the crowd, we made our way down to the garage, where we left our machines for the night. After bidding good-bye to the friends we had made on the way up, and divesting ourselves, for the first time since leaving London, of our waterproofs, leggings, etc., we wended our way back to the Royal Hotel for the night.

In a very few minutes we were enjoying the luxury of a hot bath, which was shortly followed by dinner, leaving us considerably refreshed in body and mind.

And so ended the London-Edinburgh run of 1907, which to both of us proved a most enjoyable holiday. My brother and I agreed that we felt all the better for the long hours we had spent in the saddle. Our only regret is that there are not two London-Edinburgh runs every year, but we comfort ourselves with the knowledge that it is an annual event, and that, all being well, we shall be competitors in the 1908 event.

OCCASIONAL COMMENTS. BY "IXION"

A Gap in the Market.

Referring to a recent paragraph of mine about the desirability of powerful, two-speeded chain-driven twin-cylinder machines as standard for sidecar work, two correspondents write and remind me that there are two machines on the market which "fill the bill." One is the sturdy 5 h.p. Brown, having an epicyclic two-speed gear fitted on the engine shaft, and transmitting by a countershaft and two chains to the rear wheel. The other is a 5 h.p. Eland, made by W. W. Genn, the well-known Wimbledon racing man. The latter has a Peugeot engine, and is normally constructed with a combined chain and belt drive. The gear box is amidships, and there is a chain from the engine to one side of the gear box. On the other side of the gear box is a 9in. dia. pulley, and the final drive is by belt. This is a very admirable notion. The requisite reduction of ratio is practically all obtained by the chain and gear, the belt is retained to afford smoothness of drive, and yet the belt pulleys are of such a size that slipping must be practically unknown. I fancy this machine is almost unknown to my readers. [We should be happy to publish a photograph and detailed specification if Mr. Genn will send them to us.—ED.] A second chain can be substituted for the belt to special order. Thus two machines answering my description actually exist; but I do not apologise for my paragraph, since if they had momentarily escaped the memory of one so conversant with the motor cycle trade as myself, it is obvious few of my readers would take them into account when considering the possibilities of a sidecar. We should all like to see these machines fitted with sidecars competing in the next A.C.U. quarterly trial.

Compression Meters.

A rider informs me he recently invested in a compression meter. This consists of a gauge and recording disc. It is screwed into the sparking plug orifice, the engine is then turned over the compression, and the reading taken off the dial. The rider in question had felt tolerably satisfied with his compression, and was horrified to discover the reading was only 58 lbs. per square inch, instead of the 75 lbs., which would have been correct. He is now busily engaged in remedying the defect. His first experiment was to smear oil on a ground (metal to metal) joint on the cylinder. Bubbles were visible, and consequently he fitted a copper and asbestos washer. The compression meter was then tried again, and the compression was now 64 lbs. per square inch If such a minor point effects so large a difference, we can guess the effects of worn piston rings or a badly fitted valve. I expect those gauges—like tyre gauges—are apt to become inaccurate after a period of use, and they should probably be returned to the makers annually for correction. They are an interesting accessory, which every motor cyclist who prides himself on keeping his engine in tune would do well to purchase. If universally employed they would soon teach riders in general that the exhaust valve and piston rings are very commonly blamed for a poor compression which is really ascribable to the joints at valve caps, compression taps, and cylinder heads. The asbestos in the asbestos and copper washers rapidly shrinks, and the washer needs tightening; finally, it becomes hopelessly porous, when no amount of screwing down will make them gastight, and much less explosion tight. Personally, I am an advocate of the use of fish glue or boiled oil for all joints that do not frequently need remaking. I have found them more reliable than the clean and convenient copper and asbestos washer for all engine joints.

Carrying Tools.

I have always been one of those motor cyclists who defy stranding by carrying a large kit. I use my machine chiefly on journeys with a purpose, often on very cross-country routes, in which extremely remote parts, distant from the railway, are traversed, and I ensure my safe arrival by taking plenty of baggage. For instance, my normal kit for an ordinary day's ride, which is seldom under 150 miles, and often as much as 250 or even 300, includes the following:

Three spare inner tubes.

A full mechanic's kit of tools, including little unnecessary luxuries like box spanners, cold chisel, vice, hammer, valve extractors, etc.

A full kit of engine, carburetter, and ignition spares.

Most of the above are not required once in a summer, but when they are wanted they are very badly wanted indeed, and I remember two occasions last year, which are fair samples. Once a sparking plug broke off flush with the edge of its orifice, and once an exhaust valve got buckled in its guide. In each of these cases my tool kit saved me a weary walk.

My eyes tell me many other riders believe in a large kit, but do not know how to carry it.

One of my pockets is leather lined, and always contains a contact file in pigskin case, a small King Dick spanner in a ditto, and a folding screwdriver.

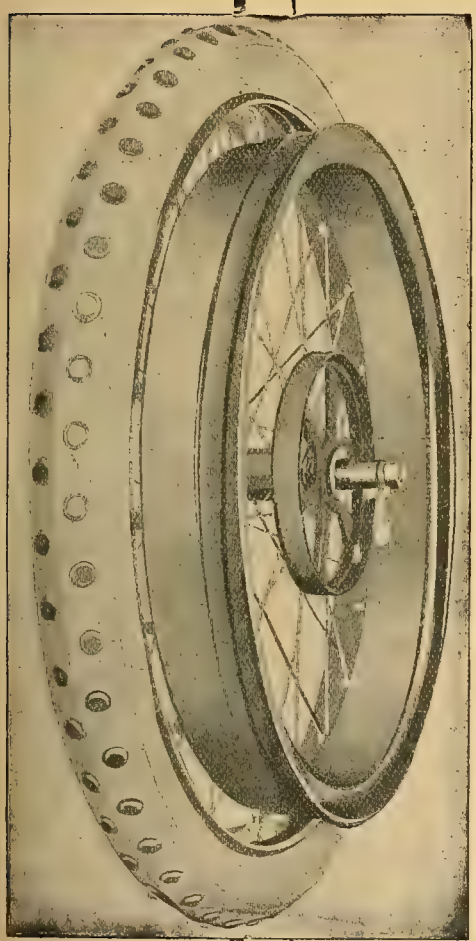
A holster between the saddle tube and rear mudguard contains the spare air tubes.

A toolbag behind the saddle contains all spare parts and the tyre outfit.

And a tool roll, attached to the back of the saddle, above the toolbag, contains all the larger tools. Everything is thus carried separately, as accessibly as is possible, and secure from damage. Let me contrast the usual motor cyclist's toolbag, which is a small portmanteau in appearance, and is smeared in its lower recesses with a malodorous compound of carbide dust and lubricating oil, out of which broken plugs, dirty tremblers, and choked files poke their lugubrious heads. I should have stated I carry my lubricant and paraffin squirts in metal pockets on the outside of the tank, and my spare carbide strapped to the rear forks.

Protect yourself

and your machine from the dangers of side-slips on rain soaked roads and greasy sets.



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A.J.W.

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place your order now. Sufficient time can then be devoted to tuning up the new mount to your own satisfaction. Not that N.S.U. machines require tuning up and adjustment; but to make absolutely certain a successful "send off" when the season commences —and after—to enjoy the full pleasures of motor cycling secure in the fact that you are getting the best out of your mount—the famous

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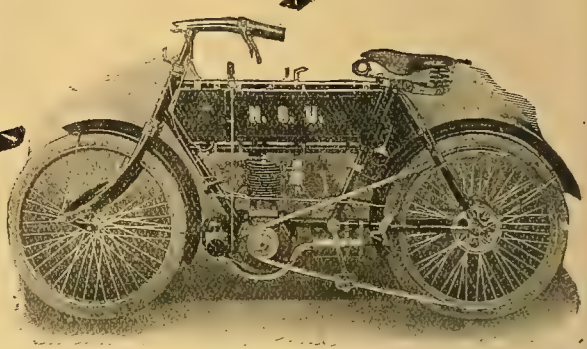

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Freights and Duties on Motor Cycles.

ON many occasions we have received enquiries from various parts of the world, regarding the cost of shipment of second-hand motor cycles from England to colonial and foreign ports. These enquiries usually request particulars of cost of packing, freight, and duties, which are very often difficult to obtain. A few weeks back we received from Messrs. Davies, Turner, and Co., Ltd., of 52, Lime Street, E.C., a printed list of such charges for motor cars, but, unfortunately, there was no reference to motor cycles. When this omission was pointed out, the firm very courteously offered to collect the particulars required, and to embody them in a list, which we publish below. The price quoted is for carting, packing, and shipping when the bulk of the case does not exceed 25 cubic feet, and the total weight 3 cwts.

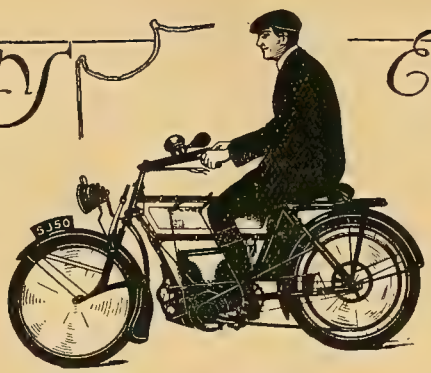
The rates quoted are those at present in force, and are liable to alteration without notice.	Cost of cartage in London within 4 miles of Bank, packing in case, dock dues, shipping, and freight per motor cycle.	DUTY—compiled from official sources but without responsibility.
AUSTRALIA		
Adelaide	47/–	British manufacture 25% *ad valorem*, foreign manufacture 30% *ad valorem*.
Brisbane	45/6	
Fremantle	50/3	
Melbourne	47/–	
Sydney	47/–	
BELGIUM		
Antwerp	31/3	12% *ad valorem*.
Brussels	31/6	
Ostend	29/6	
CANADA		35% *ad valorem*, but if imported from the United Kingdom accompanied with a preferential certificate that the cycles are of British manufacture, 22½% *ad val.*
Montreal	35/6	
Quebec	35/6	
CEYLON		
Colombo	43/9	5½% *ad valorem*.
CHINA		
Hong Kong	50/3	Free.
Shanghai	53/9	5% *ad valorem*.
EGYPT		
Alexandria	39/6	8% *ad valorem*.
FRANCE		
Bordeaux	39/6	£4 9 5 per cwt.
Boulogne	32/–	
Marseilles	38/3	
Paris	32/–	
GERMANY		Weighing 50 kilos. or less each, £2 10 10 cwt., over 50 and up to 100 kilos., £1 18 1 cwt., over 100 and up to 200 kilos. £1 15 7 cwt.
Bremen	34/9	
Hamburg	33/6	
INDIA		
Bombay	40/6	5% *ad valorem*.
Calcutta	40/6	
Karachi	40/6	
Madras	40/6	
ITALY		
Genoa	38/3	£3 4 0 each.
Leghorn	38/3	
Naples	38/3	
JAPAN		
Kobe	52/–	40% *ad valorem*.
Yokohama	52/–	
NEW ZEALAND		
Auckland	51/6	20% *ad valorem* for British manufactured cycles accompanied by preferential certificate.
Dunedin	51/6	
Lyttelton	51/6	
Wellington	51/6	
RUSSIA		
St. Petersburg	34/–	With 2 wheels £2 2 3 each. With 3 wheels £7 7 9 each. With 4 wheels £14 15 7 each
SIAM		
Bangkok	50/3	3% *ad valorem*.
SPAIN		
Barcelona	41/6	£6 2 0 per cwt.
Gijon	41/6	
Bilbao	38/–	
Santander	38/–	
SOUTH AFRICA		
Cape Town	54/–	Must be accompanied by a certificate to get the preferential rate of duty, 15% *ad valorem*, less 3% of amount charged if of British manufacture.
Delagoa Bay	60/3	
Durban	58/6	
East London	57/9	
Port Elizabeth	53/3	
SOUTH AMERICA		—
Buenos Ayres	48/–	
Monte Video	48/–	
Rosario	51/9	
Valparaiso	55/3	
Iquique	55/3	
STRAITS SETTLEMENT		
Penang	47/–	Free.
Singapore	47/–	
TURKEY		
Constantinople	38/3	8% *ad valorem*.
U.S.A.		
New York	38/–	45% *ad valorem*; under certain conditions free.
Baltimore	38/–	
Boston	38/–	
Philadelphia	38/–	

To find cubic measurement of a cycle when packed in a case, measure its greatest height, breadth, and length, add six inches to height and two inches to breadth and length for packing, and multiply height × breadth × length.

The Roc Co. inform us that one of their machines is now being prepared for Capt. A. Arkell-Hardwick, F.R.G.S., commanding the motor cycle section of the London Command of the Legion of Frontiersmen. The specification is identical with the familiar Roc military model as previously supplied to the British War Office with the following additions: Spring fork, Whittle belt, toolbag fixed in rear of frame, rubber studded or Kempshall non-skidding tyres, and Rich's tubes. These machines have no plated parts, and are enamelled khaki colour.

With a mileage recorder the feature that, probably, commends it most to the average motor cyclist is the facility it affords for knowing fairly accurately the length of each trip taken. But it is essential to jot down the figures shown on the dial before starting, and to note them also on finishing the journey—little matters which, however, are apt to be forgotten until too late. The Bowden mileage recorder renders calculation unnecessary, thanks to the little "trip" arrangement, which shows the length of any particular trip on a separate dial, while the other dial diligently piles up the total.

Questions & Replies.



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned numbers must be used, the writer to keep a key for reference.

All queries should be addressed, to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, must be accompanied with a stamped addressed envelope for reply.

Carburetter and Gear.

I am building a motor cycle, and have fitted a 4 h.p. Antoine engine. Please tell me what you consider the best model of Longuemare carburetter for this engine, and also what gear would be suitable (26in. wheels)? —S.A., Ayr.

The type of carburetter we should recommend is the Model H Longuemare. Gear 4½ to 1 if your weight does not exceed twelve stones.

Faults in Design.

I wish to purchase a two year old motor bicycle, and I notice the valves are directly under the tank. Can you give me any idea as to the possibility of a valve breaking? viz., how often it might occur, as the engine would have to be taken down to replace a valve. There is a tube under the tank, so it would be no advantage to move the tank instead of the engine. Do you think the above a serious drawback to a beginner buying a machine?—W.J.P.

Certainly, the points you mention are drawbacks. There should not be trouble with the valves breaking, but they may require to be ground in about once every 1,000 miles, and the cylinder will require removal occasionally in order to scrape away the accumulated deposits.

A Beginner's Queries.

Having bought a Rex with magneto, what spares and spanners would you advise me to buy, and what to carry about with me? What kind of oil should I use for magneto, and also for engine, and how often should I oil them?—J.J., Carmarthenshire.

You would require spare valves, springs, and cotters for the engine, and a spanner to fit all the principal nuts on the machine, an adjustable spanner, a pair of cutting pliers, spare platinum points for the magneto, a special spanner for the magneto, spare sparking plug, a coil of copper wire, a belt fastener, belt punch, and short length of belt. When touring a spare inner tube is advisable. See also "Motor Cycles and How to Manage Them." Use bearing oil for the magneto, and only best quality air-cooled cylinder oil for the engine.

Timing of Valves.

I shall be glad of your advice on the following: How should an engine be timed? The large and small toothed wheels have got 1, 2, and 3 dots on a tooth, so many teeth apart. And where can I procure two good exhaust valves?—J.T., Manchester.

The first thing to do is to see that the exhaust valve is closed simultaneously with the piston reaching the top of the exhaust stroke, then note the position of the marks on the teeth (there should be only one in the correct position) and try the machine on the stand and see how it runs. If it does not run to your satisfaction try any one of the positions marked on the wheel. You must be careful, however, to see that these marks on the teeth allow the valve to close only one tooth earlier or one tooth later than the position of the teeth when the valve is set to close with piston at dead centre of exhaust and inlet strokes. Specially made exhaust valves can be obtained from Binet and Co., A. E. Heckford, and A. Drew.

Exhaust Pipe and Ignition Queries.

(1.) Would there be any disadvantage in having a long exhaust pipe fitted to my 3½ h.p. engine, provided that there were no sharp curves in it, and would this tend to lessen the noise of the explosions? (2.) I use a trembler coil with make and break contact, but have been informed that I should get more speed and power if I fitted a good plain coil in place of the trembler. Is this correct, and if so, do you advise the change? (3.) Would this upset the timing in any way? and what alterations should I have to make? (4.) The platinum points on the contact breaker blade and screw wear rather quickly, and require frequent cleaning and adjustment, generally about every 150 to 200 miles or so. How can I remedy this? and is it the fault of the coil? (5.) What do you consider a good substitute for platinum? Is iridium satisfactory or not?—L 861.

(1.) Yes, by all means have a longer exhaust pipe. The longer the exhaust pipe the better, provided it is of ample diameter. A long pipe would tend to silence. (2.) Yes, we advise the fitting of a good plain coil, which should improve the speed of your machine. The advantages of a trembler coil are that it is easier to test if the ignition is in order, and it also enables easier starting. The screw, however, requires adjustment from time to time. A plain coil requires no attention. (3.) The only way in which a plain coil will upset the timing is that, instead of the spark taking place when the platinum points make contact, as in the case of a trembler coil, the spark takes place when the points separate, and you will consequently have to alter the adjustment of your contact breaker and so set it that the platinum points touch as lightly as possible, and yet make a good contact, and also change the position of the cam on the shaft. The nose of the cam for use with a plain coil should also be sharper than the one employed with a trembler. (4.) It may be the fault of the coil; or it may be the points are not genuine platinum or iridium. (5.) Iridium is not a substitute; it is a dearer metal than platinum, and more difficult to fit to the screws and springs, but does not wear so fast and remains clean longer.

Easy Starting and Connecting Hot Air Pipe.

My motor cycle, a 3½ h.p. Brown, is very difficult to start on level roads, as it goes too stiffly. It starts all right if on a downward grade. I always start machine on stand and warm the engine before I take it out, and I always give engine a supply of oil about every fifteen miles. I have been advised to connect a pipe from the carburetter to the exhaust to make it go easier. Would this remedy the evil at all, and where and how ought it to be connected?—E.H., Herts.

Starting in cold weather is simplicity itself, provided you adopt our frequent advice and do not allow the petrol to get stale. In the combustion head of your engine there is, or should be, a small tap, through which a small quantity of paraffin should be injected before attempting to start. Then flood the carburetter, open the throttle halfway, entirely close the air lever, and switch on, when the engine should start with ease. A considerable improvement may be made by fitting a shutter over the inlet through which the fixed air supply to the carburetter passes, so that you can partially close this when you are getting under way, and open it again after the machine has started. During cold weather it would be quite a

good plan to connect up the hot air jacket of the carburetter. You will see a union on the jacket of the vaporising chamber which must be connected up by means of a pipe to a hole in the exhaust pipe. This is to prevent the moisture in the carburetter from freezing after the engine has started and run for some time.

Position and Adjustment of Carburetter.

Please advise the best position for Longuemare carburetter to get best results in hill-climbing. I must fit it lengthways of machine on account of space, and fancy the spray chamber should be in the rear, in that case to keep the petrol in jet on a hill. What height should the jet fill to when machine is dead level? Please say best procedure to obtain most power from the engine through carburetter adjustments?—W.S.

The best position is close behind the engine. The petrol should be within about ⅛in. of the top of the jet. You should so adjust the carburetter that the engine will take full air and say half throttle when it is travelling at its maximum number of revolutions. If you place the spray chamber to the rear and float next engine you should get a higher petrol level at the jet for hill-climbing, but it is probable with level correct for ordinary conditions, a carburetter so fitted would flood when ascending a steep hill.

Lift of Exhaust Valve and regarding Accumulators.

(1.) I have just got possession of a new small car, air-cooled engine, bore 88 mm., stroke 95 mm. It has only been run on the stand, and is almost as it left the makers. The engine runs all right, but on examination I find that the exhaust valve lifts only about 3-16in.; the head of the valve is 1¼in. diameter. Is this not too little lift for an engine of the size mentioned? The engine has been made in a first-class way and carefully fitted all over. Is it likely that this small lift has been a mistake? (2.) I was foolish enough to buy from a cheap sale in London an accumulator without a name. First time I sent it to be charged it was sent home with the positive plates rent to pieces and warped beyond measure. I took out the broken plates and am going to fit new positives of good make. Meantime, I washed with a little soda the negative plates and put them into a bath of water. Will they keep right so treated till I replace all in case, or must I allow them to dry? or had I better get a full set of new plates, both negative and positive?—J.C., N.B.

(1.) The lift of the exhaust valve would be right if just over 3-16in. You say "about 3-16in." To increase the lift of the valve a new cam would have to be fitted unless tappet is too short. (2.) The best plan to deal with your accumulator would be to gently scrape the negative plates and put them away dry until required. Really, it would have been better to have sent the accumulator away to be repaired.

Accumulators or Dry Batteries.

(1.) I wish to try dry batteries on my 3 h.p. Quadrant. Are such suitable for any non-trembler coil? (2.) How should I proceed to open and empty my present accumulators (containing jelly) and how clean the plates so that they may be left for an indefinite time without attention? (3.) Is it customary to obtain a receipt for a motor cycle when leaving same at a garage on tour?—K.C.G., Putney.

(1.) If the coil is an economical one, dry batteries would suit you well. (2.) You should purchase an accumulator repair outfit, open the top of the accumulator according to instructions and remove the plates; scrape them clean, thoroughly wash them and the case, and then seal up the case again. If you use the accumulator another time, you had better refill with liquid electrolyte, as you will not be able to mix the gelatine electrolyte yourself. (3.) It is not customary to obtain a receipt for a motor bicycle left at a garage, but it is by no means a bad plan to do so if the owners are willing to give it. Usually it is sufficient to leave your name written on a label secured to the machine.

Erratic Running of Engine.

I have a 2¾ h.p. Werner, plain coil, make and brake contact, spray carburetter. When jacked up on the stand I can start it, after a little persuasion, (owing to cold, I suppose), and it will go readily slow or quick as desired. If I take it on the road it may start and go for a few minutes, and then for some unaccountable reason it will pull up sharp, as though a brake had been applied. Now if I raise the exhaust and pedal a few quick strokes it will restart. I do not experience this trouble when spark is well advanced, or when descending hills, at least at not such a marked degree. The machine does not stop altogether, merely slows down and then goes on again. I have had the exhaust valve out, cleaned, and replaced it, but no improvement. Carburetter seems all right, floods at the least depression of needle. Spark is good also. The inlet valve is one of the variety called M.O., I believe. —AMATEUR, Middlesex.

The trouble is certainly rather a mysterious one, and is somewhat difficult to account for. Possibly when the contact breaker is retarded you get an occasional short circuit in that position. It seems, also, that the carburetter is not very well adjusted, as the engine starts with some difficulty. One good way of overcoming this trouble is to fit a shutter over the inlet through which the fixed air supply is taken, so that it may be partially or entirely cut off when you attempt to start, and may be opened again afterwards. Has the carburetter an automatic air inlet? If so, the spring may require tensioning. Try oiling a little more often, and see that the petrol pipe is not too close to combustion head or silencer pipe. If you obtain a copy of "Motor Cycles and How to Manage Them," you will be able to explain your trouble to us more clearly.

Correspondents writing to the Editor with regard to motor cycles or motor cycling subjects are earnestly requested to keep their queries as short and as concise as possible.

TUBULAR LUGGAGE CARRIER AND STAND.

We occasionally receive enquiries for a stronger luggage carrier than those usually supplied for attachment to motor bicycles, and we now publish an illustration and particulars of the Premier tubular carrier and stand sold

by the Premier Motor Co., Ltd., Aston Road, Birmingham. The front of the carrier is attached to the seat tube, and the rear tubular supports to clips fastened on to the back stays of the machine. The stand has an eye at the end of each leg. These are slipped over the ends of the back wheel axle. When

out of action the stand is held up by a bolt and thumbnut which are fastened to the bottom of the rear mudguard. Both carrier and stand can be easily fitted to any machine not already equipped with these accessories, and the above-mentioned firm is willing to quote special terms for them to large buyers.

MAGNETO IGNITION.

By "GEOFFREY."

WHILE high-tension magnetos have done much to solve the ignition problem on motor cycles, and undoubtedly provide the most reliable form of ignition, they have their disadvantages, small though they be. As an enthusiastic user of the Simms-Bosch high-tension magneto for the past two years, I should like to enumerate these disadvantages as I find them. But let me explain at once that I am by no means an electrical expert. The drawbacks are (1) difficulty of starting, (2) difficulty of slow driving, and (3) small range of advance and retard. To deal with them seriatim, probably the most generally accepted idea against magnetos is that they render starting very difficult; but this idea is greatly exaggerated. Starting with a magneto is slightly more difficult than with a battery, but the reason for the prevalent idea that magnetos are hard to start is that at one time they were blamed for causing difficult starting, when in reality the blame should have been attached to the carburetter. If the platinum points of the magneto are clean and separate the correct distance (which is said by the makers to be .5 mm.) and the points of the sparking plug not more than .4 mm. apart, the engine will start at a speed of six or seven miles per hour, but an accumulator ignited engine will start at a walking speed if everything is in order, and continue to pull so long as there is sufficient momentum on the flywheels to overcome the compression. Carburetters having been improved to such an extent, sluggish starting has been largely overcome, but the difficulty of starting a motor cycle engine with magneto by handle—unless geared up—is still existent. It can be done by a handle on the engine shaft, but the operation is very uncertain.

En passant, I should like to warn users of magneto motor cycles with geared-up starting handles that an engine backfire is quite possible and might prove serious, unless the engine is started in the proper manner. The spark lever should not be advanced further than the position in which a spark is obtained at fairly low speeds. With the ignition fully advanced, and the engine not being turned over fast enough when the valve is dropped, a nasty backfire may be the result. The moral is to get a good speed on the engine before releasing the valve lifter.

Difficulty of Driving Slowly.

The difficulty of driving slowly is again not entirely due to the magneto, but more depends on the carburetter and skilful manipulation of the throttle and air levers by the rider. My own experience is that the lowest speeds are obtained by slightly retarding the spark, opening the throttle one quarter, closing extra air, and then applying the footbrake as necessary.

The small range of advance and retard is due to the strength of the spark of a magneto not being always the same. Magnetos have to be started with the spark advanced, as they are set to give the best spark in this position. The strength of the spark not only varies with the position of the contact breaker, but the speed of the armature also. The more the lever is retarded the less and less efficient becomes the spark, until it disappears altogether. Obviously this is the reason why the spark lever is advanced at starting. Even magneto machines themselves vary. I have used probably a dozen different DA2 type Bosch magnetos on motor bicycles, and while some would allow the spark lever to be varied considerably, others only allowed about half an inch of movement on the quadrant. This is accounted for by the fact that some engines are timed faster than others. For hill-climbing competitions a certain well-known firm time the magnetos differently from their standard mounts. The maximum position is not put at full advance, but somewhat retarded, so that at full speed at the bottom of the hill the lever would be fully advanced, but immediately the engine began to slow down the lever would be retarded to its "maximum" position, and thus the spark improved in intensity, instead of deteriorated as in the usual case.

A Suggestion.

What is wanted, then, to overcome all three of the above objections is a device to enable the rider to alter the timing of the spark through the same range as the battery ignition without affecting its intensity. This can be done by rotating the whole magneto in relation to the armature shaft, as is the case with the Eisemann magneto on Panhard cars, but on motor bicycles this arrangement would probably be somewhat difficult to carry out. There should, however, be other methods of overcoming the objections, although I regret I am not in a position at the moment to recommend how it should be done. Seeing that a D A 2 magneto is driven from the half-time shaft, the armature must revolve once for each time the spark occurs. As the armature cuts the lines of force twice in each revolution, it follows that on one of the occasions on which the lines of force are cut the energy is wasted, as the contact breaker does not allow two sparks to be produced.

We have heard little of the type of magneto designed solely to act as a generator, a similar coil and contact breaker being used as are employed for battery ignition, though their advantages are many. One of this type was the Coates, and if any readers have used this form of magneto, it would be interesting to have their experiences.

Finally, I should like magneto experts to tell us why the magneto is not made to run faster than the half-time shaft, say at the same rate as the engine-shaft, to enable a better spark to be obtained at low speeds, and also how is it that some cars—Renault in particular—are fitted with one form of ignition only (the Bosch high-tension magneto), and yet can be started fairly easily with the handle? In the first case, probably the magneto would not stand the speed, and, in regard to the latter, my own opinion is that it is due to the very large sized magnets enabling a better spark to be produced at low speeds.

The Continental Tyre and Rubber Co. (Great Britain), Ltd., 102, Clerkenwell Road, E.C., have now placed upon the market a specially coloured single and double-braided inflator tubing. The advantages claimed for it over ordinary rubber and canvas tubing are its extraordinary strength, durability, flexibility, less liability to crack, and its attractive appearance.

CURRENT CHAT

AN INFINITELY VARIABLE GEAR (Illustrated.)

SPECIAL FEATURES

PREPARATIONS FOR THE END-TO-END.

One in Forty-five Motor Cyclists.

Mr. J. P. Sowerby writes: "The little village of Beelsby, seven and a half miles west of Grimsby, contains four motor cyclists and a population of 180. This average of one in forty-five beats both Lamberhurst and Market Deeping."

The End-to-end Run.

Inquiries are already being received by the A.C.U. with reference to the Land's End to John-o'-Groat's Trial to be held in July next. The route to be followed will be very similar to that taken in the 1906 trial, but owing to the lack of suitable hotel accommodation at Lockerbie, the destination for that day's journey will probably be Moffat. It has been suggested that, instead of going from Perth to Inverness direct, the journey should be somewhat lengthened, and Blairgowrie, Braemar, and Ballater visited. This route would take the riders through a more populous part of the country than that passed through by going over the Grampians. Competitors would also then have a chance of trying the famous "Devil's Elbow."

Affiliation of Motor Cyclists.

The financial position of the Auto Cycle Union will be improved by the new scheme, as the whole of the affiliation fees received from motor cyclists will be retained by the A.C.U., and from these a reserve fund will be established to pay grants in respect of any actions in which matters of principle or of general interest to motor cyclists are involved.

Variable Speed Pulleys.

Judging by the number of sketches and descriptions of variable speed engine pulleys which we receive weekly, many brains are at work in solving the variable gear problem. If we were to illustrate and describe every design submitted to us, it would be almost to the exclusion of all other matter.

Carrying Tennis Racquets and Golf Clubs.

A pair of clips for conveniently carrying an umbrella on a bicycle have reached us from Herbert Terry and Sons, of Redditch. It is not the habit for motor cyclists to carry an umbrella on their machines, but if stronger clips of an amended design were made for carrying a tennis racquet or golf clubs on a motor bicycle, we should predict a ready demand for them.

The Number of Different Pattern Motor Cycles.

It will be seen from "The Buyers' Guide," published in our last issue, that there are 103 different pattern single-cylindered motor bicycles on the British market, 71 multi-cylindered bicycles, and 30 tricars. Four of the above-mentioned single-cylindered bicycles are designed for ladies' use. The lowest priced bicycle in the Guide was £19 10s., and the highest priced £75. See page 150 for two additions.

FUTURE EVENTS.

—:o:—

Feb. 21-29—Manchester Motor Car Show, Belle Vue, Manchester.
Mar. 21-28—Cordingley's Motor Show, Agricultural Hall.
" 28—M.C.C. Opening Week-end Run to Brighton.
April 18-20—Brooklands Motor Races.
" 16-20—M.C.C. Easter Tour.
" ——A.C.U. Quarterly Trial.
May 2—M.C.C. Members' Hill-climb.
" 9—Brooklands Motor Races
" ——A.C.U. Annual Hill Climb at Haslemere.
June 5-6-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition and special motor bicycle cup.
" 2—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U. 24 Hours Ride.

The Tourist Trophy Race.

The regulations governing the International Auto Cycle Tourist Trophy Race, for a perpetual trophy presented by the Marquis de Mouzilly de St. Mars, have now been issued. Intending competitors may obtain copies of the rules from the secretary, Auto Cycle Union, 18, Down Street, Piccadilly, W. It is stated in the rules that "the 1908 race will probably be held in the Isle of Man, either the end of September or early in October."

Coil Efficiency.

As an instance of the highest engine speed that can be attained with a perfectly proportioned induction coil, a contributor mentions a run he had recently on a six-cylinder car with synchronised ignition and a single trembler coil. The speed of the six-cylinder engine was about 1,300 revolutions a minute, so that if the coil had been firing a single-cylinder engine it would have enabled it to reach about 7,800 revolutions per minute.

A 1 in 3 Grade.

A correspondent to *The Autocar* points out that the now disused water chute at the Crystal Palace might at small expense be made to serve admirably for a hill-climbing test. He points out the gradient is 1 in 3.

London to Land's End and Back.

As stated last week, it has been decided to award the cup presented by the president of the M.C.C., Mr. Charles Jarrott, for a long distance motor bicycle trial, in a competition from London to Land's End and back. The start will probably take place from Hyde Park Corner at 3 or 4 o'clock on the morning of August 3rd, Land's End being reached by the same evening, the return journey to be commenced the following morning after a rest of about five or six hours. If the route to Land's End is *viâ* Salisbury, Exeter, Launceston, Bodmin, and Redruth, the distance is 276½ miles, or a total of 553 miles to be covered in two days. The trial is not so arduous as the Schulte Cup Competition, although the Land's End route is a much severer test for the machines.

New A.A. Member.

Lord Tollemache, an enthusiastic motor cyclist, and the winner of *The Motor Cycle* Design Competition, is among the recently elected members of the Automobile Association.

Exhibition of Inventions.

The Permanent Inventors' and Manufacturers' Exhibition at Carlton House, Regent Street, Waterloo Place, S.W., may interest some of our readers. This exhibition is open daily from 10 a.m. to 6 p.m., Saturday's 10 p.m. to 2 p.m., and consists of a permanent exhibition of models, drawings, etc., of inventions and manufacturers' samples which are shown, explained, sold, or otherwise dealt with by a competent staff for a moderate inclusive annual fee. Further particulars can be obtained from the secretary at above address.

The Future of Motor Cycling.

The next paper to be read before the members of the Auto Cycle Union is that on "The Future of Motor Cycling," to be given by Mr. H. G. Bell, on Friday, February 28th, at 8 p.m.

Application for Permit.

An application has been made by the Lewisham A.C. for a permit to hold an open hill-climbing competition on River Hill, but the A.C.U. recommended the club to choose another venue on a less frequented road.

Taxation of Motor Vehicles.

Speaking at the Cardiff M.C. dinner on Thursday evening last, Mr. Rees Jeffreys said he was able to make the first public announcement that the Chancellor of the Exchequer agreed to receive yesterday (Tuesday) a deputation from the Motor Union, of which Capt. Hughes-Morgan and the Rev. F. W. Hassard-Short (vice-presidents of the Cardiff M.C.) were to be members.

Motor Cyclists in the Grand Prix.

It was recently hinted in these columns that a well-known motor cyclist had offered to pilot one of the British cars in the Grand Prix Race. We are now enabled to divulge the name of the rider in question, who is none other than Geo. A. Barnes. As our readers are well aware, Barnes has had a great deal of experience on British and Continental racing tracks, and has scored numerous successes. It is possible he may drive an Austin—one of three entered by the Austin Motor Co., of Northfield, Birmingham. "The English Cannon Ball," as Barnes is called in France, is not wanting in pluck and nerve, and would be sure to put up a good race. Cissac, another famous motor cyclist, has been selected to drive a Panhard car in the same race.

Land's End to John-o'-Groat's Trial.

The Auto Cycle Union's Trial over the End to End route, which will be held in July next, is creating a considerable amount of interest already, and many private owners have announced their intention to take part in the classic trial. The question of the amount of the entry fee is one which is always being asked, and we therefore announce that the committee of the Union has fixed the following as the amounts of the entrance fees to be charged: Trade entries (first machine), £5 5s.; each additional machine, £3 3s.; members of the A.C.U. (private owners), £2 2s.

The A.C.U. Fifth Annual Dinner.

THE fifth annual dinner of the ruling body of the sport and pastime of motor cycling was held at the Hotel Cecil on Saturday last. Unfortunately, the number of members who attended was somewhat small, chiefly owing to the function taking place on a Saturday night. It was originally intended to hold a council meeting in the afternoon, but, as Mr. Todd explained later in the evening, it was better to postpone the affair, and thus give the clubs plenty of time in which to discuss matters previous to the A.C.U. annual general meeting. After the dinner a capital entertainment was provided—in fact, it was the best of its kind ever organised at an A.C.U. annual dinner. The speeches were good, short, and to the point, and Colonel H. C. L. Holden, R.A., F.R.S., made an excellent chairman. After the toast of "The King, the Queen, and the Royal Family" had been given, Colonel Holden, before proposing the toast of the A.C.U., referred to a letter which had been received from Mr. T. K. Hastings, president of the Federation of American Motor Cyclists. Mr. Hastings regretted that the great distance between New York and London prevented his attendance. (Laughter.) He wrote in glowing terms of the great consideration, hospitality, and courtesy he had received at the hands of the Union during the 1907 reliability trials. He hoped to participate in the Land's End to John-o'-Groat's trial, and had much pleasure in again presenting the Hastings Trophy for the best performance of a private owner in this year's long distance competition. (Cheers.)

A Good Omen.

Colonel Holden, in proposing the toast of "The A.C.U.," referred to the change of name. It was, he said, a good omen; union meant strength. He thought the motor bicycle was the most marvellous of all the instances of automobilism. People said that to balance a bicycle and to manage an engine was a most rash thing to attempt. That was why, he considered, the De Dion firm made a tricycle, and now at the present time the tricycle is practically dead, and the motor bicycle survives. It will travel as fast and as far as a car, and, seeing the excellent performances made by motor bicycles in the A.C.U. trials, the limit of endurance of one of these machines did not seem to be yet reached. The Union was most active during last year; the ground it covered was most comprehensive. In its long distance trial the competitors went through thirty different counties, and if a few converts had been made in each, good work had been done. The motor bicycle had many advantages over a motor car—it was easily managed, occupied little room, and cost little to maintain. The Union had been lucky as regards its officers; it could find no better chairman than Mr. Todd and no better secretary than Mr. Straight. Mr. Robert Todd in response spoke of the termination of the agreement between the R.A.C. and M.U. It had come about because both bodies found they could not both sit on the same side of the fence at the same time; the A.C.U. had therefore thrown in its lot with the R.A.C., whose secretary, Mr. J. W. Orde, had done excellent work for the Auto Cycle Union. Touching on Col. Holden's remarks about the early De Dion tricycles, he remembered it was stated in the catalogues that motor bicycles were not recommended, and would only be made to order.

Motor Cycle Taxation.

Dealing with the question of taxation, the Chancellor of the Exchequer was busy arranging for old age pensions, and for these he would expect the motor cyclist to contribute. He considered that to approach him would be almost useless, but at any rate an attempt would be made to get motor cyclists' taxes fixed as low as possible. He noticed that many members of the C.T.C. objected to motor cyclists in that body, and he thought it would be a good opportunity for motor cycling members of the C.T.C. to join the A.C.U. He was glad to see that there was peace in the ranks of motor cyclists.

In proposing the toast of "The Affiliated Clubs," Mr. J. W. Orde stated that he had had the honour of proposing the same toast last year. He did not know if his words had had any effect, but many more clubs had become affiliated. There were, however, too many unattached riders, and many clubs not yet in the fold, to whose interests it would be to come into the fold. The clubs as units had much work to do. He feared they thought too much of what they were going to get out of affiliation. It was the duty of each unit to make itself of great importance and cause the Union to feel it could not do without it. Each club should set its own house in order, and show what it has, can, and will

The A.C.U. Fifth Annual Dinner.—

do for motor cycling, and pursue a policy of making itself useful. In conclusion, he referred to the Holden motor bicycle, with its four cylinders and electric ignition, which was far ahead of its time. He expressed his willingness to help either the A.C.U. or any club affiliated to it.

Mr. R. H. Head, chairman of the Motor Cycling Club, then replied. He said the A.C.U. had always been considered by his club as a useful and important body, and his club had been anxious to associate itself with it. It had, however, been thought somewhat of a weakling. A committee of eight surgeons resolved to operate upon it, and removed its appendix, the word "club," and substituted another, the word "union." His club, the Motor Cycling Club, the oldest motor cycling institution, was its staunchest supporter

Mr. Carpmael, Richmond and District Motor Cycling Club, said that the body which he represented was more than pleased to be associated with the A.C.U., and he spoke in glowing terms of the manner in which he had been treated during the Union's competitions for which he had entered, and of the excellent work done by Mr. F. Straight.

A Good Balance at the Bank.

Mr. C. A. Smith, A.C.U. treasurer and vice-chairman, in proposing "The Visitors," referred to the pleasure it gave him to see so many guests present. He noticed among them Mr. Stenson Cooke, the secretary of the Automobile Association, which had grown to such an enormous extent; Mr. W. G. Williams, who had been kind enough to place Deasy cars at the club's disposal for trials; Mr. Rutter, who had written much about the A.C.U. in the *Daily Telegraph*; Mr. Berriman; Mr. Anderson, editor of the *R.A.C. Journal*; and Mr. Head, chairman of the M.C.C. Touching on the question of affiliation, he said the new scheme had been sent out, and when the clubs saw it they would undoubtedly join the Union. He did not think they could pick many holes in it. He also mentioned the A.C.U. had a good bank balance with which to start the year.

Mr. Stenson Cooke replied with an amusing speech, in which he referred to the bewilderment caused by the number of automobile associations. He received many complaints about the inconsiderate drivers of motor cars, but heard none about drivers of motor cycles. Motor cycles, at any rate, gave audible warning of their approach.

Mr. W. G. Williams gave some interesting reminiscences of his early experiences with motor cycles. He spoke of the pleasure a motor cycle gave to its owner, and of the good work done by the Union.

Mr. Rutter responded with a short but most amusing speech.

The Chairman then handed the Auto Cycle Tourist Trophy to the winner, Mr. C. R. Collier, and regretted the absence of Mr. Rem Fowler, the winner of the cup for twin-cylinder machines presented by Dr. Hele-Shaw.

Dr. Hele-Shaw, F.R.S., then proposed the health of "The Chairman," mentioning in enthusiastic terms the magnificent work he had done in the cause of automobilism.

Colonel Holden then replied, and the dinner was brought to a conclusion.

CLUB NEWS.

Crewe and District M.C.

At a committee meeting held on the 13th inst. it was decided to hold the opening run on May 2nd and a non-stop reliability trial on May 23rd. Particulars of both runs will be sent to members shortly. Mr. G. Harvey was elected treasurer in place of Mr. J. C. Lapage, who has left the district.

Worcestershire M.C.C.

At a general meeting of the above club, held at headquarters on Saturday last, it was decided to increase the committee to ten, a set of rules was passed, and it was decided to hold the opening run on Saturday, March 28th. The members will meet at headquarters at 3 p.m. for a run to the "Hundred House," Witley; tea at five o'clock.

North-west London M.C.C.

A very successful whist drive was held at the Wellington Hall, Finchley Road, on the 8th inst., nearly 100 members and friends attending. Six valuable prizes were given. The social winter programme of the club has been most successful, and the interest shown by the members augurs well for the present year. Those who join the club now will enjoy the full benefits of affiliation to the Auto Cycle Union. The hon. secretary, whose address is 22, Olive Road, Cricklewood, will be glad to forward particulars to any person desirous of joining the club.

Glasgow M.C.C.

The smoking concert and presentation of prizes organised by this club were held in Glasgow on Thursday, 13th inst., when members and friends to the number of between 40 and 50 put in an appearance. It proved a very enjoyable entertainment of a high order. The gathering was voted a distinct success, and resulted in nearly a dozen of the friends present giving in their names as new members of the club. A set of mock rules which had been compiled for the occasion by the hon. sec. in the style of those for a reliability trial and consumption contest were read before the proceedings commenced, and produced great merriment.

The Western District M.C.

The Chairman of the above club, in acknowledging the assistance given by *The Motor Cycle* in the formation of the Western District M.C., which now numbers forty-eight members, mentions that it was agreed at the general meeting held on the 7th inst. to adopt *The Motor Cycle* as the official organ of the club.

Shamrock M.C.C.

At the annual general meeting of the above club, officers for the year were elected, and the 1908 programme arranged. This includes a two hundred miles reliability trial, several hill-climbs, also a consumption trial, which will take place on Saturday, June 6th.

All communications should be addressed to the hon. secretary, H. J. Miller, 146, Madrid Street, Montpellier Road, Belfast.

Westcliff and Leigh M.C.

A motor cycle club is in course of formation, to be known as above. The subscription has been limited to 7s. 6d. per annum, with the advantages of a free garage for fifty motor bicycles and tricars, and free advice upon the repair and purchase of motor cycles. All club notices will appear in *The Motor Cycle*. Further particulars can be obtained from Mr. Hersey, Alba, Silverdale Avenue, Westcliff-on-Sea, Essex.

Newcastle M.C.

This club's annual general meeting was held on Wednesday last, the 12th inst. Mr. Arthur J. Lucas was unanimously re-elected president for the ensuing year. The secretary, Mr. J. P. Robson, gave a review of the club's doings during the past year, all of which, he was very proud to say, were magnificently successful. It was decided that the club again affiliate with the North-Eastern Automobile Association, provided that that body affiliate with the A.C.U. and R.A.C. The annual subscription for motor cyclist members was reduced to 10s. 6d. The club committee are asking for members' suggestions for competitions.

Club News.—

Brighton and District M.C.C.

At a meeting of the above club on Tuesday of last week, some twenty new members were enrolled. The balance-sheet showed a satisfactory balance in hand, and was passed.

This year's prospects are very promising, and at an unofficial run on the 9th inst. a good attendance was made. Particulars of membership can be obtained from the hon. secretary, Mr. Harold Clifton, 60, Ship Street, Brighton, and all motor cyclists in the district should join so as to obtain the benefits of affiliation.

Motor Cycling Club.

It has been the pleasant custom of the officers, past and present, of the above club to spend a social evening together once a year. The proceedings consist of dinner, music, and "M.C.C. toasts." The last are a modification of the usual after dinner speeches, and they never fail to provide amusement. This year's function was held at Pagani's Restaurant on Tuesday evening, the 11th inst., with Mr. R. H. Head in the chair and Mr. J. Van Hooydonk in charge of the musical arrangements. Twenty-five "past and present" officers attended, and the entertainment went on top speed all the time. With songs and recitations from Messrs. Ilsley, Cecil Paget, Mentor, Mott, Hooydonk, Seed, Charles Pond, and others, and two-minute speeches from every member present, there was not a dull moment from beginning to end. Mr. Albert Wilkins was kept fully occupied at the piano.

Southend and District M.C.

The next three fixtures are: February 26th, smoking concert at headquarters, 8.30 p.m. March 12th, whist drive at headquarters, 8 p.m. March 29th, opening run, White Hart Hotel, Witham.

Arrangements will be made at the Crown Hotel, Rayleigh, whereby members intending to take part in any run will be able to find out, before proceeding, the names of members who have already left for the destination appointed.

Enquiries as to club fixtures should be addressed to the subsequent meeting of the committee of the club. Various events, such as a gymkhana, hill-climbing competition, paperchase, and picnics, are contemplated.

Enquiries as to club's fixtures should be addressed to the captain, Mr. H. Greenfield, 173, Hamlet Court Road, Westcliff-on-Sea.

The West London District M.C.

The above club held its first annual general meeting on February 7th at the Milford Hotel, Spring Grove.

The balance-sheet for 1907, showing the club to be in a satisfactory state financially, was adopted. The rules were revised and several additions made. It was resolved that new members should be charged an entrance fee of 2s. 6d., while the subscription was raised to 7s. 6d. for motor cyclists and 10s. 6d. car owners, which shall include affiliation to the A.C.U. and association to the R.A.C. The hon. sec. is Mr. R. R Babbage, whose address is 16, Rigault Road, High Street, Fulham, S.W.

A sub committee of ten members was formed to arrange a monthly competition confined to members, and other matters connected with the sporting side of the club.

A whist drive will be held at the Milford Hotel on Wednesday, March 4th, at 8 p.m. Members are earnestly requested to give their support; tickets 1s. each.

Cardiff M.C. Annual Dinner.

The annual dinner of the above club was held at the Queen's Hotel, Cardiff, on Thursday evening last, February 13th. The president of the club (Lord Ninian Crichton Stuart) was in the chair, and among those present were Lady Ninian Stuart, the Lord and Lady Mayoress, Capt. D. Hughes-Morgan, Mr. W. Rees Jeffreys (Motor Union), Mr. and Mrs. J. W. Courtis, Mr. and Mrs. F. H. Jotham, Messrs. J. T. Willows, W. Jones, W. T. Symonds, Ed. Nicholl, T. G. Brooks, W. Parker Thomas, H. Lewis, T. Hutt Ekins, H. B. Jotham (hon. sec.), etc.

The Chairman, in proposing the health of the King, referred to His Majesty's interest in motoring, and his ever kindly consideration to motorists.

Mr. J. W. Courtis proposed "The City and Trade of Cardiff," to which the Lord Mayor and Mr. Wm. Jones responded. Capt. Hughes-Morgan proposed "Automobilism," and Mr. Rees Jeffreys replied. Mr. G. B. Thompson proposed "The Cardiff Motor Club," to which the President replied, and pointed out that the balance in hand last year progressed from £2 to about £36. The President then presented the hon. secretary (Mr. H. B. Jotham) with a silver tray in acknowledgment of his services, and Messrs. H. Haddon and E. Owen with a fruit dish and cruet for their service at the hill-climb.

Mr. Jotham also responded to the toast.

Lincolnshire M.C.C.

A meeting of the members of the Grimsby Centre of the Lincolnshire M.C.C. was held at the Ship Hotel, Grimsby, on Saturday last, Mr. H. Haagensen presiding. The prizes won in club and centre competitions during last year were presented. A discussion arose as to the future of the centre. It had been suggested that the riders in Grimsby should form a separate club, and the hon. sec. of the club, Mr. Wilkinson, attended the meeting. It was pointed out that the members had full local powers, and it was suggested that it would be better to arrange more meets than the club members generally could participate in. Various suggestions were made as to meets and competitions, and it was unanimously decided to remain as a centre at least for this year. At Easter the members of the centre are to meet at Mablethorpe for lunch, and a pleasant little competition for a prize offered by Mr. J. Smith is being arranged.

Breakdown competitions, consumption tests, and inter-club meets are proposed, and efforts are being made to arrange for members to compete in the Land's End-John-o'-Groat's ride.

AUTO CYCLE UNION NOTES.

The annual meeting of the private members will be held on Monday, March 2nd, at 7.30 p.m., at 119, Piccadilly, W. Notices of any propositions to be brought forward for the consideration of the private members at this meeting should be sent to the secretary, 18, Down Street, Piccadilly, W. before Monday next, February 24th.

Council Meeting.

The annual general meeting of the Council will be held at the Criterion Restaurant, Piccadilly Circus, W., on Saturday March 21st, at 3 p.m. Any notices for the agenda must be in the hands of the secretary by Friday, February 28th.

ADDITIONS TO "THE MOTOR CYCLE" BUYERS' GUIDE

We shall be glad if readers will add the following particulars of the Phänomen motor bicycles to "The Buyers' Guide" published last week.

These machines are made in four different patterns—two single-cylinders and two twin-cylinders. The 3 h.p. 82 × 84 mm., and the 3½ h.p. 86 × 84 mm., automatic inlet valves, Longuemare carburetters, magneto ignition, and belt transmission. The length of wheelbase is 55in., and the weight of the 3 h.p. 140 lbs.; 3½ h.p. 145 lbs. The price of the 3 h.p. is £37, and the 3½ h.p. £39.

The twin-cylinder 4 h.p. is 67 × 72 mm., and the two 6 h.p. 74 × 84 mm., with the same length of wheelbase, which is 56in. The weight of the 4 h.p. model is 150 lbs., and the 6 h.p. 175 lbs. The price of the 4 h.p. is £46, and the 6 h.p. £50. 2¼in. Peter-Union or Continental tyres are optional. All the machines have 26in. wheels, and the height of the frames 29in. from the ground. Spring forks, adjustable pulleys, two-speed gears, and cooling fans can be supplied to order.

The Dot motor bicycles, made by Messrs. H. Reed and Co., 306, Deansgate, Manchester, were also omitted from the "Guide." Dot motor bicycles are made in two patterns with twin-cylinder engines. One model is 3½ h.p. twin engine 66 × 70 mm., weighing 130 lbs., and priced at £4. The second is 5 h.p. twin V-engine, 76 × 76 mm., weighing 150 lbs., and priced at £45. Both are belt-driven.

We wish to impress on our readers that the publication of illustrated abridgments of patent specifications under the heading of "Recent Patents" does not always signify that such patented articles are being manufactured and sold. We are constrained to write this paragraph because the Triumph Cycle Co. inform us that they have received a number of enquiries regarding the change-speed gear and free engine which was published on page 134 last week, but they do not intend to supply it with their 1908 machines, as they have not found it to be satisfactory.

Riley

NEITHER MONEY NOR EFFORT is spared to make **RILEY TRICARS** representative of the best that modern tricar and car building skill will produce. . . Inexperienced employees have nothing to do with the production of these tricars, neither can they contain any inferior material whatsoever. .

5 h.p. Model
85 Gns.

6 h.p. Model:
115 Gns.

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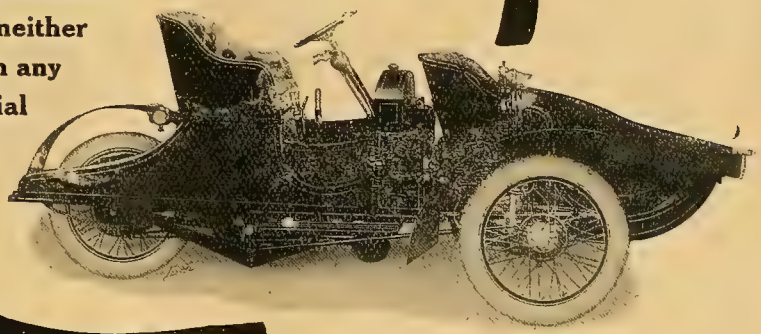
130 Gns.



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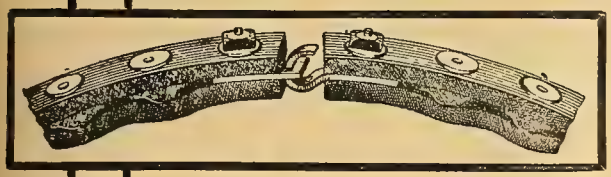
THE "WHY" OF THE "WATAWATA."



When you successfully sell an article to practical men whose technical knowledge enables them to weigh its real merit, you can rest assured there is a solid, convincing reason "why." The "why" in the case of the Watawata is that it was designed with a specific reason—to check power wastage—and also that, to reach our purpose, we deemed no material too good, no skilled labour too expensive; thus we also secured the highest pitch of endurance and reliability.

And so it is that the WATAWATA is esteemed of all practical motor cyclists.

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A word about the ROC TWIN . . .

The design which has made the single cyl. 4 h.p. Military Roc world-famous, applies the same to the Roc Twin.

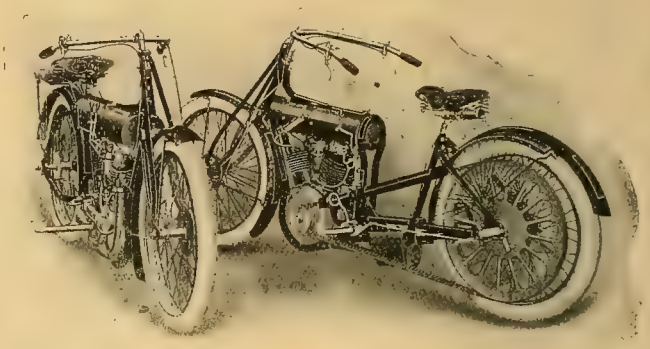
The Roc Twin engine is 5-6 h.p., 76 mm. bore × 76 mm. stroke, A.O.I.V.

The Roc Twin has just the same low comfortable seat—the long wheelbase—the live back axle with hand starting—the pedal-operated Roc patent clutch-speed-gear. It has also the same strong duplex frame—exactly the kind of frame that is wanted for sidecar work.

As evidence of the remarkable strength of the Twin Roc it is interesting to recall the test of a private rider, Mr. C. A. Palmer whose experience was reported in "The Motor Cycle," January 22nd, 1908.

Mr. Palmer's Twin Roc, succeeded in towing a tricar with a weight of 1,028 lbs. up a 1 in 7½ to 1 in 8 gradient.

The fact of the frame and gear standing the pull of the 5 h.p. engine and a load of nearly half a ton is sufficient proof of the quality and strength of the Roc's working parts.

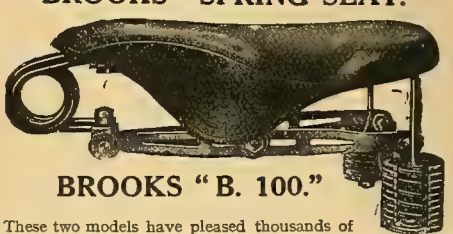


1908 Roc Twin, 5 6 h.p. Military Model, S. Bosch H.T. magneto, Roc clutch speed-gear, 55 GNS.

A. W. WALL, Ltd., Roc Motor Cycle Works, BIRMINGHAM.
(Corner Dartmouth Street).

SEATS YOU DON'T GROW TIRED OF!

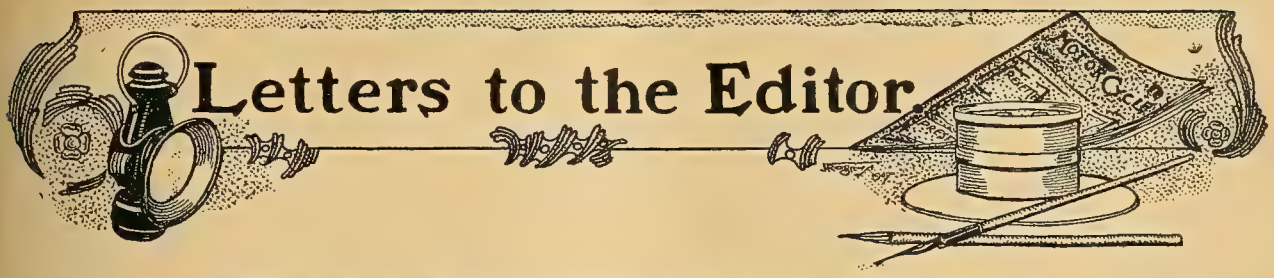
BROOKS "SPRING SEAT."



BROOKS "B. 100."

These two models have pleased thousands of motor cyclists. The method of construction on scientific anti-vibratory principle, combined with the choicest of leather tops, make these seats great favourites with all experienced riders. Our "Saddle Manual" describes them. Copy free. Dept. 45.

J. B. BROOKS & Co., Ltd.,
The Saddle Specialists, BIRMINGHAM.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Magneto Pinion Moved.

[3118.]—Regarding the reply to "G. W. B." (Luton), page 100, February 5th, about a 3½ h.p. N.S.U., I had exactly the same trouble with my 3½ h.p. N.S.U., but on carefully going over the machine I found the timing gear wheel on the magneto had moved. When this was readjusted the machine ran as well as ever. W. MORRISON.

Twin-cylinder Puzzles.

[3119.]—I have read with interest the letter under the heading of 'The Solution of the Twin-cylinder Puzzle," and agree with "A. W. B." in that, if amateurs realised the importance of perfectly timed firing on twin-engines there would be less heard of "puzzling behaviour of twins."

I may say I have had an R.O.M. contact breaker fitted on a 5 h.p. Rex since last August, and for speed, reliability, and slow running in traffic there can be no doubt this combination would be hard to beat. I have also had a rubber-studded tyre on the back wheel this winter, and, as a result, a side-slip is now a thing unknown.

In conclusion, I should like to add my appreciation of *The Motor Cycle*, which has afforded me many pleasant hours of reading, and from which I have obtained many useful tips.
A. V. DAVIS.

Motor Cycle Records, 1907.

[3120.]—Having been a constant reader of *The Motor Cycle* for the past three years, I beg to take exception to the article in the issue of January 1st, "Motor Cycle Records, 1907," compiled by Mr. J. Sinclair. Since H. Rignold made his world's record for one mile flying start at Brighton, July 20th, 1905, in 46⅕s., I broke this record on the 14 h.p. Simplex-Peugeot at Ormond Beach, Florida, on June 25th, 1907, covering a mile (flying start) in 44⅖s. On August 2nd, at Providence, R.I., during the F.A.M. Meet, I covered a mile on the same machine in 44⅗s., nearly equalling my Florida record. In the 500 cubic centimetres class for single-cylinder machines, an American machine evidently holds the world's record for one mile straight away (flying start) in 56⅕s.

As American records should have the same recognition as other records, I hope to see my letter published in an early issue of *The Motor Cycle*. WM. H. WRAY, JUN.
New York, U.S.A.

Exchange Transactions.

[3121.]—The letters of "Hastings" and "Rex 1904" appearing on page 131 of *The Motor Cycle* of February 12th, and which have reference to my experience in an exchange transaction with the Rex Co., only tend to confirm my previous statement, viz., that I received the most excellent treatment throughout the deal.

Since my letter on the subject appeared in *The Motor Cycle* I have received particulars in quite a number of cases where riders have been most shamefully treated over similar transactions with lesser known firms, but, on the other hand, I have been in conversation with three different people at separate times on the road who had met with equally good treatment as myself in exchanging with the Rex firm. In these days when so many people seem willing to take advantage of others in business transactions, it appears only fair to call attention to the fact when one is fairly and squarely done by, as I was, and I had no other object whatever in writing to you as I did than to let others know of what had occurred.

The contention of "Rex 1904," viz., that a stranger who had never possessed a machine might go to the works stating that he had sent off his old machine, and on the strength of this, ride off on a new one, might apply in some cases, although it would not say much for the business acumen of the firm which allowed itself to be so easily defrauded. In my own case, as a member of two of the leading scientific institutions and a member of the Motor Union, and further, being engaged in a class of work which brings me somewhat frequently before the public, it would have been somewhat difficult to "ride off with a new machine never to be heard of again."
CHAS. S. LAKE, A.M.I.Mech.E.

Variable Gears for Motor Bicycles.

[3122.]—Having read the discussion on "Variable Gear for Motor Bicycles" in *The Motor Cycle*, I cannot agree with Mr. Hooydonk's suggestion that the ideal gear has not been designed yet. I have designed, manufactured, and put to a severe testing a free engine metal to metal clutch with which I can get any gear required by allowing the clutch to slip. It is a friction clutch so designed that it will allow the engine to start as smoothly as any car, and when fully engaged I challenge any engine ever put in a cycle frame to slip it. I have run it for half an hour at full engine speed while travelling at about eight miles per hour, and it shows no signs of wear. It has been arranged so that lubricating is quite easy when running at any speed.

There is no end thrust on the engine-shaft during engagement or disengagement, and no alteration of belt or jockey pulleys. It can be manipulated from the handle-bar, and is practically fool-proof. Once adjusted it will run for months without further adjustment. The total weight is 5¼ lbs., and no structural alterations are required. R. ENGLISH.

Colonial Requirements.

[3123.]—I read with much interest a letter in the issue of December 18th, 1907, from Mr. Conrad Hilner, King Williams Town, and whilst agreeing with him as to the bad roads out here, and also as regards the Eisemann magneto, I most strongly disagree with him on certain points. He says there are no motor repairers nearer than Johannesburg—600 miles away. What about Manning and Co. and other repairers at East London, about forty miles away? Mr. Manning is one of the best mechanics in the colony, and his firm has recently imported motor cabs and cars for East London, and it stands to reason he does not send his repairs to Johannesburg. Then Port Elizabeth is just over 200 miles away, where there are no less than four motor and cycle engineering works.

Chains *v.* Belts.—I think I had the first chain-driven motor cycle in Cape Colony, but never again for me. I have been riding motor cycles from their early introduction to the Colony, from the 1½ h.p. Minerva to that firm's latest and best, also their racer, and won eight first prizes out of ten races, so I claim to know something about belts and chains. A chain is not so bad in town, but out in the country it is absolutely dangerous, especially to anyone not a mechanic, and the tyre bill is three times more than with belt drive. I have used one Watawata belt for two years, and it is now in use on a machine reduced from ⅞ to full ⅝, and it has never broken, whilst with the chain I have seen

an engine jam, and the rider thrown and badly hurt; it is bad for the engine and worse for the tyres.

Two-speed gears and free engine.—I cannot agree with him in this, as my experience (and others') goes to prove that in this climate the engine overheats too quickly. If your correspondent were to get a 3½ h.p. Minerva with magneto ignition and a Watawata belt he would find it the ideal machine for this country, and it is not necessary to have the engine 6in. from the ground. My racing motor bicycle is only 3½in. from the ground, and this has been ridden by several riders in various parts of the Colony, and at present is at Hout Kraal, between De Arr and Kimberley, in constant use. I saw two machines that were ridden from Cape Town to Port Elizabeth, then to East London, and from there to Durban; the clearance was 4in.

If anything could be done to improve the 3½ h.p. Minerva it would be to make it a 3½ h.p. twin-cylinder with magneto ignition.

I must apologise for this lengthy letter, but when people write to a public journal they should know what they are writing about. J. BRAYBROOKE.

Port Elizabeth, S.A.

Suggestions for the T.T. Race.

[3124.]—I think that in connection with the T.T. Race there might be a competition arranged for accessibility, such as taking the valves out and replacing, removing cylinder, piston, rings, and also engine complete. It would be found by this that there are many machines made that will cause a great deal of work, and many nuts, bolts, and silencer pipes, tanks and carburetters, etc., that have to be moved to get an exhaust valve out and replaced. This is a thing that should be corrected on touring machines.

Of course, this is not the case with all machines, but the thing that wants to be done is to show up the poor ones so that the makers will change them, and one will learn a little from the other, and there will be improvements all round.

Other things that are needed are: Few parts to collect dirt and dust, no outside ribs on crank cases, magneto gear cases, and the magneto should be enclosed so that the machine presents a smooth appearance. The magneto, I think, is best placed to the rear of the engine, as on the Phänomen or N.S.U. twin-cylinder machine.

New York. FRANK C. SAWARD.

A Useful Paraffin Tank.

[3125.]—The suggestion contained in your reply to "Y 139" on page 101 of *The Motor Cycle*, viz., that a small tank might be fitted to a convenient part of the frame to contain paraffin and a small pipe with a tap led from it to the compression tap for the purpose of injecting paraffin without having need to use an oilcan, appeared to me to be so highly practical that I at once took steps to have it carried out on my 3½ h.p. magneto machine, with which in this cold weather I experience some little difficulty in starting. The "tank" was formed out of an empty cocoa tin clamped to the down tube below the saddle, and a small copper pipe about ¼in. bore runs from the bottom of this along the lower horizontal tube of the frame, with fastenings thereto, below the petrol tank to the compression tap. A brass tap is placed immediately at the base of the paraffin tank, and the whole arrangement looks exceedingly neat, besides being a great boon from the utility point of view.

The first day I had it on the machine I was returning from Dunstable to London, and when about two and a half miles on the further side of St. Albans I came to a standstill with an empty petrol tank. It is a long and trying climb into St. Albans, and I should have had to pay the penalty for my neglectfulness but for the presence of the little paraffin supply. By means of letting about a thimbleful or so of the paraffin drip into the cylinder through the compression tap, and then jumping quickly into the saddle, I was enabled in a series of sprints interspersed with injections of paraffin between each to ride up the hills instead of painfully toiling up them pushing the machine. The cloud of smoke given off from the engine was only a temporary inconvenience, and much to be preferred to the painful alternative. Each sprint took me about one hundred yards, and the power was ample.

GRATIFIED.

Does an Air-cooled Engine Overheat?

[3126.]—With reference to Mr. Childs's letter, in which he states that he has driven "all out" for long periods on a 3½ h.p. Rex, geared 5½ to 1, without loss of power from overheating, I think this is chiefly due to the fact that Rex machines are fitted with very large valves. A friend of mine made an interesting discovery the other day. He owns a 1906 model 3⅜ h.p. Rex, and also a 9-12 h.p. tricar of well-known make, and happened to notice that the valves fitted to the Rex were considerably larger than those fitted to the tricar engine, each cylinder of which has a bore of 86, the stroke being 89. S. H. CROW.

[3127.]—In reply to "H.M." I have avoided all references to "Charles's law," as no one can seriously deny that all air or gas must expand when heated. The point is that this expansion or increase in volume is accompanied by corresponding reduction on pressure, as per Boyle's law, involving reduced compression and consequent loss of power. Is this clear? R. B. VERNEY.

A Gap in the Market.

[3128.]—"Ixion's" comments are always good reading, and his remarks under the above head seem, to my mind, to merit further discussion. I have been waiting to see some maker put a twin-cylinder machine on the market with chain drive and two-speed gear. ["Ixion" describes two machines so fitted in "Occasional Comments" this week, see page 142. —ED.]

Some of us want to tow sidecars along, and do not care to have to choose the districts to ramble in. Others, like

Mr. Harry Naylor, of the Government School, Malcolm, Australia, who speaks in eulogistic terms of his 3½ h.p. Triumph motor bicycle. During the first month he had the machine, he covered 1,000 miles without a solitary misfire, and never had to make an adjustment.

myself, like to "roam among the mountains," not even always keeping to the hard high road. If the "gap in the market" was filled, at least two classes of motor cyclists would be made happy.

This type of machine, combined with sidecar, would not cost half what the luxurious big tricar costs; it would be more sociable, and for these two reasons alone should find a ready sale.

Some will say that this machine, with its chain drive and two-speed gear, is cumbersome for single handling. I do not think so. With the free engine clutch, moving it about would be easier than shoving a belt-driven machine; and the starting would be much easier, for given a starting handle on the countershaft (I presume the two-speed gear to be fitted here) when engine is started, even on a stiff grade, the rider takes his seat as if he was in a car and lets in the clutch. Magneto would be fitted, and a chain guard from engine to countershaft, as on the Phelon and Moore. In an experience of five

years, principally with chain-driven machines, I do not think the guard from countershaft to back hub necessary.

In regard to chain driving for motor cycles, I have noticed people like "Road Rider," in his hints and tips, speaking in a way that leads one to suppose they are prejudiced, or have never had a lengthy experience on chain-driven machines of the Humber, Rover, and Phelon and Moore types. I trust your readers have not been led astray by his remarks. "Road Rider" also has another fling at chains in your issue of February 5th.

Naturally one pays more for chains than belts; but compare the mileage of both. It is worth it.

I am at present the owner of a belt-driven machine. The cost of belts compared with chains appals me, and I am going back to the chains for this reason alone.

My belt always throws mud on me in wet weather; the chains never did.

No one of sound mind would run an uncovered chain 1,000 miles without cleaning it. I have never had a canvas and rubber belt that ran this distance! I have run chains 15,000 miles without them getting seriously out of pitch. It is a little Irish to say "a chain will run for ever if not broken," to say the least of it.

I have not had a chain snap, but a belt several times; neither has my engine jammed—so I cannot speak on these points from experience. A bad driver surely will damage his engine with any form of transmission. The chain drive is not the harsh unyielding drive as all seem to think. There is always (or should be) a clutch or spring plate engine sprocket fitted.

My present belt-driven machine does not seem any less prone to slide or slip than my old chain-drivers. I fail to see why it should be.

"Road Rider's" and my length of driving on chain-driven machines appear about the same, and I now ride a 1907 magneto 3½ h.p. belt-driven machine, with a ⅞in. rubber belt and 28° pulleys. It is a gem, but it has belt drive—the only unsatisfactory thing about it. For hard all-weather riding give me the chain, and, compared with removing a Shamrock Gloria belt fastener, a chain can be removed in an equal time.

But every man to his own taste. Both belt and chain have their advantages, I admit, but the balance is most decidedly in favour of the chain, and I cannot understand why it took 40,000 miles of road riding to convince "Road Rider" that a chain was bad practice. PHIL.

Touring with a Tandem Back.

[3129.]—Having made several French tours with a passenger mounted over the back wheel, I was especially interested in the recent article describing a tour in Switzerland made in this manner, but by the photograph of the machine I was surprised to see that the passenger was carried on an impromptu seat on the rear luggage-carrier, with no handle-bar or footrests, beyond the steps. I am sure he would have derived a lot more comfort and pleasure had he been mounted upon a proper tandem attachment, with a handle-bar, pedal rests fitted lower, and a roomy, well-sprung saddle. As it is, I wonder how the carrier stood the strain.

I believe I can claim to be the originator of this method of passenger carrying, as six years ago I designed a simple and easily-detachable tandem seat. This my local firm built up at a cost of 25s., using ordinary Chater-Lea lugs and bicycle tubing. It has been on four machines, and is in use to-day. I may say that the Chater-Lea Co. market a tandem attachment, the method of fixing being the same as my own.

Not only is it a much more comfortable and safer seat than a carrier, but after a little practice the passenger can mount or dismount at any speed up to twenty miles an hour. My passenger has made more than one flying leap in the case of a tyre burst, thereby perhaps saving a spill. Again, it is much easier to start. I do not know how Mr. Howarth effected this, as I presume he had to pedal off with the passenger seated. [Mr. H. used a two-speed gear and free-engine, as stated in his article.—ED.]

There is no doubt it is a simple way of carrying a passenger on a Continental tour. It is as sociable as a sidecar, but not half the pull. Years ago, the writer and a passenger made a couple of long runs in France in this manner on a 2½ h.p. Minerva motor bicycle.

With a more powerful machine this year, I intend using an improved tandem back of my own design, with long footboards carried back so as to serve for both passengers, the rear half being hinged so as to allow easier access to the tyre. This would provide the comfort of a small car, and with a low-built frame both driver and passenger will be able to foot the ground quite easily in the event of a side-slip. On several occasions, after a bad slip, the machine has turned half and even threequarters round in the road without a spill, but with the attachment extra care is necessary in grease, especially on a cambered road or corners.

I have found by experience that the steering and balance are better if the driver sits well forward, and the engine should be carried forward *à la* Roc.

The engine I intend using is a 4 h.p. single-cylinder Peugeot with a suitable gear. I anticipate being able to climb most hills with a passenger. Two speeds are unnecessary, owing to the passenger being able to assist in starting. I have started half-way up Westerham and similar hills quite easily in this manner, with, of course, pedalling and a vigorous push from the passenger. C. M. F.

Non-skidding Tyres.

[3130.]—I have read Mr. C. A. Crow's letter in your issue of February 5th *re* above with much interest, as I have in the course of business been riding daily all through the winter. I have ridden on the greasiest asphalt and stone setts in the East and South-east of London, as I have to go out in all weathers. When the dry weather had gone and roads did not dry up quickly, I soon found myself skating on the ordinary tyres, so had a steel-studded back tyre. This I found was all right on some roads, but on setts and asphalt slipped as much as ever, or nearly so. I next tried rubber studs, and they were better, but still I skidded, though not so much as formerly—they were better than steel. I think I have tried all the non-skids on the marke

I have since had various tyres made from an idea of my own, and use a rubber-studded tyre on the front and a steel-studded tyre on the back, and must say that I think I have solved the question, as I have had no side-slip since. In all my experiments I found that for regular winter riding one must have non-skids on both wheels, as the front wheel slips more than most people imagine; *especially is this more noticeable with a good non-skid on the back.* I think the rubber studs are the most comfortable to ride, but one is not so immune from punctures as with the leather and steel, and punctures are not very pleasant in mud and wet.

I have also found that the hard steel studs skid more than softer ones, and do not wear very much longer, if any at all. Those who have had a good side-slip or two while going at a fair pace are not likely to forget it, and any skid at all is very dangerous in traffic.

I agree with Mr. C. Booth-Jones that a discussion on the subject would do good. LN 3980.

SUMMARY OF CORRESPONDENCE.

The Bosch Magneto Co., Ltd., write: "It would save a large postage bill on the part of ourselves and of your readers if, when writing to us for a booklet descriptive of our magnetos, they would inform us for what kind of engine they require the information respecting the magneto—that is, whether for a single or twin-cylinder engine."

EXPERIENCES WANTED.

"A. C. R." would like readers' experiences with the 2 h.p. Moto-Rêve, the lightweight 1¼ h.p. N.S.U., and the 1¾ h.p. F.N., especially as regards comfort, reliability, hill-climbing and power, and petrol consumption.

"All-weather Rider" would like readers' experiences of the Douglas 2¾ h.p. motor bicycle, particularly with regard to ease of starting with magneto, freedom from vibration, silence, and hill-climbing. Is the machine a clean one to ride?

We have just received from Messrs. Mills-Fulford an advance copy of a brochure which they are issuing under the title of "Other People's Opinions upon Sidecars." It consists chiefly of reprints of letters and extracts from articles which have been published in *The Motor Cycle* on sidecars as a form of attachment for use with motor bicycles. It is to be obtained free on application to the publishers, Crown Works, Coventry.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 133.*)

CHANGING GEAR ON TRICARS.

173. Motor car handbooks should be consulted on all questions of gearing, but there is one outstanding difference between high-class cars and tricars which justifies this note, namely, the absence of a governor on tricars.

At each change *up* the engine speed is slackened and the road speed is quickened.

The driver, therefore, rightly speeds up his engine on the first gear before changing on to second, and on second before changing on to third, but he should never forget that he speeds his engine up for the sake of *road speed not* of engine speed. Consequently, as soon as the road speed is high enough for him to change into the next higher gear, and he takes out his clutch to do so, he should reduce his engine speed either by retarding the spark or by closing the throttle, before the gear lever is moved into the next notch.

If a driver attempts to change up on almost any standard gearbox with the engine racing, he will probably fail to mesh his gears, or at any rate there will be much noise, and the gears will in time be worn; with such a gearbox as is fitted to the 6 and 9 h.p. Riley the change may be safely made, even if the engine is running a little too fast and it is possible to change down without withdrawing the clutch, but it is wise to slow the engine first. Thus the procedure for any change of gears in an upward direction should be as follows:

Run engine fairly fast, till machine has attained almost its maximum speed on the gear which is engaged.

Throttle engine down and withdraw clutch simultaneously.

Slip gear lever into next notch, and let clutch pedal up gently.

Gradually open throttle till engine has regained speed on its new gear.

CHOICE OF A SECOND-HAND MOTOR BICYCLE.

174. If possible secure the aid of an experienced rider. No novice should buy a second-hand machine on his mere personal judgment. Failing experienced help, insist on the machine being driven up the steepest hill in your neighbourhood at a good speed, after a few miles preliminary run.

The engine should run with no other sound than the click of the valves and the sound of the exhaust. Rattle, knock, or squeaking should disqualify it for further consideration.

Stand on pedal with valve dropped; the compression should resist rider's weight for at least ten seconds when the engine is warm. Examine frame for dents and want of truth.

Move engine pulley vertically up and down; if play exists, bearings are worn: end play is pardonable within narrow limits; revolve pulley with valve lifted and listen for unwarrantable sounds.

Spin, shake, or otherwise test cycle bearings for wear.

Go over the tyres carefully, and insist on being shown the inner tubes.

The batteries should read four volts on the meter, have no corrosion on terminals, and no signs of leakage at their joints. There should be no grey deposit on their plates, nor dust and dirt in bottom of the cells. The magneto will be all right if the machine starts easily and runs well on your test hill.

Is the pulley seriously worn, with hollowed sides, or are its grooves fairly straight and true?

Exercise great care with machines made by unknown firms, and still greater care in the purchase of second-hand machines which have been in use for more than two years.

CHOICE OF A NEW MACHINE.

175. Weight is of prime importance.

High tension magneto ignition is more reliable and less trouble, but higher in first cost than accumulators.

Powerful twin-cylinder machines are not all-the-year-round mounts for the average rider, though very pleasurable in good hands on clear roads. It is a fallacy to suppose a twin is a more *certain* climber than a single cylinder. It climbs *faster*—that is all. Climbing depends on gear and power.

It also takes more understanding and more looking after.

A heavy rider should gear a 3½ h.p. machine low.

All the good machines partake in the 1,000 miles trials of the Auto Cycle Union.

Variable gears are yet in their infancy. There are a few good ones—*vide* reports of long-distance trials.

An adjustable pulley should form part of every single-geared specification.

The saddle should not be more than 31in. from the ground line. The wheels should be 26in., and the tyres 2¼in.

Avoid novelties or freaks.

Avoid new pattern engines, the first products of their makers.

The machine that will suit a novice best is the machine that frequently scores in competition when ridden by amateurs.

CHOICE OF A PASSENGER MACHINE.

176. The same remarks apply to passenger machines as to motor bicycles. It is a mistake to buy second-hand passenger machines unless you obtain the assistance of experienced help. The cheapest, fastest, go-anywhere specification for two people, is a 5 h.p. twin-cylinder motor bicycle with sidecar attachment, and chain-driven two-speed gear. If the gear and cycle are good, it will give far less trouble and be far cheaper to run than any tricar.

A 3½ h.p. tricar will not go "anywhere."

A chain drive is better than a belt drive for passenger work.

In selecting a tricar it is better to choose one with the *frame* sprung fore and aft. If it is only sprung in front the driver will experience a good deal of vibration on rough roads.

As regards sideslip, a motor bicycle with rigid sidecar *never* side-slips. A flexible sidecar is easier to steer on dry roads and round corners, but can execute grand pirouettes on grease. An armoured tread on the driving tyre will, however, keep it much steadier.

A tricar with an armoured rear tyre is perfectly safe on the worst grease.

If your sidecar does not answer the helm as you could wish do not blame its designer. You have put it on wrong, and it needs adjusting.

A reverse is an inestimable boon on a heavy tricar, but dispensable on sidecars, owing to their extra steering lock.

Three speeds are twice as good as two any day.

Don't accept any passenger machine with shoddy brakes; any heavy tricar that relies solely on external leather band brakes is not safe, and do not fit a sidecar to a bicycle that is already insufficiently braked.

Don't expect too much of the front brakes of a tricar unless they are of the internal expanding type.

CLOTHING.

177. Cap should be thick, even for summer use.

Carry an extra waistcoat, or a detachable leather lining in the kit.

Special waterproof overalls are costly, and unless of strong texture easily ripped.

Oilskins are much cheaper and more serviceable, though very ugly.

Leather is not waterproof, and is known to be unhealthy.

Boots should have hobnailed soles.

The ideal dress, therefore, is:

Heavy tweed cap with buttoned flap.

Norfolk jacket of heavy tweed, dust-coloured.

A silk or woollen neckerchief to keep the collar clean.

Special thick corduroy or vest with detachable leather lining.

Riding breeches of whipcord (fawn).

Brown leggings.

Brown boots with nailed soles.

And a coat of some good wear and cold-resisting material with macintosh overalls to match. When these last two are removed the motor cyclist will always present a clean appearance, no matter how muddy or dusty the roads may be. For exceptionally bad weather a suit of oilskins and a sou'wester hat may be carried as a reserve.

COCOANUT MATTING.

178. Thick fibre matting is a far better insulator of vibration than india-rubber. It may be used for the trough of a tricar front seat, for the footboards, and for laying under the cushion of a bucket seat.

(To be continued.)

¶ *"The Autocar," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. Issued weekly.*

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"THE MOTOR CYCLE" BUYERS' GUIDE, published in "The Motor Cycle" of Feb. 12th, furnishes most interesting data to the thoughtful prospective purchaser of a motor cycle. Dealing only with twin-cylinder models, we find seven so-called five h.p. machines with a vast variation in cylinder capacity, as the following table will show.

FROM "THE MOTOR CYCLE."

Name of Motor Cycle.	H.P.	Bore and Stroke in Millime's.	Cubic capacity in Centimetres.	Name of Motor Cycle.	H.P.	Bore and Stroke in Millime's.	Cubic capacity in Centimetres.
"Vindec Special"	5	75 x 76	670	* ——	5	77 x 80	744
* ——	5	74 x 80	688	* ——	5	75 x 90	795
* ——	5	76 x 80	724	* ——	5	82 x 90	950
* ——	5	70 x 95	730				

* *See "The Motor Cycle" Issue, February 12th, 1908.*

The "VINDEC SPECIAL" five h.p. twin, with the smallest and lightest engine of the lot, has proven many times in open competition that it is faster and more powerful than its bulky competitors. And the fact remains that the "VINDEC SPECIAL" still holds the record for speed up Birdlip Hill, and also Dashwood Hill—made in open competition with these abnormal engines.

In the 1907 six days' reliability trials the "VINDEC SPECIAL" five h.p. twin made the fastest time of any machine up Birdlip Hill.

These facts induce us to again ask the prospective purchaser—Why buy a monster with superfluous bulk and weight when the twin "VINDEC SPECIAL" gives the best results.

OUR 1908 48-PAGE ILLUSTRATED CATALOGUE, FULL OF INTERESTING INFORMATION, WILL BE SENT FREE UPON RECEIPT OF REQUEST.

SOUTH BRITISH TRADING Co LTD

13 & 15 WILSON ST, FINSBURY. LONDON. E.C.

In answering this advertisement it is desirable that you mention "The Motor Cycle."

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given, c/o *The Motor Cycle*, 20, Tudor St., E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

HALIFAX Motor Exchange. — As the largest dealers in Rex machines, we have a few 1907 shop-soiled machines at clearance prices. Great bargains. Exchanges in all 1908 Rex and N.S.U. models.

HALIFAX.—1907 3½ h.p. Rex, 26 by 2¼ Continentals, spring forks, soiled; 19 guineas, November price £26 5s.

HALIFAX.—1907 35 guinea twin Rex, spring forks, soiled; £23; you save £13 15s.; we gain your confidence.

HALIFAX.—1907 magneto twin Rex, unridden, November price, £42, our price £28 10s.; another £13 10s. saved.

HALIFAX.—Shop-soiled 1907 black and gold Rex de Luxe, twin tyre, magneto, Roc clutch; 1908 price £55 13s., our price £35; you save £20 13s.; we cannot keep this up indefinitely, and only a Rex agent can do it.

HALIFAX. — 1908 Rex de Luxe, Roc clutch, two-speed gear, magneto; 55 guineas; liberal exchange.

HALIFAX. — 1908 Rex featherweight, magneto, magnificent hill-climber, recommended; 25 guineas.

HALIFAX.—1908 3½ h.p. N.S.U., magneto, just delivered; £40; allow £25 for last year's model.

HALIFAX.—1908 5½ h.p. twin N.S.U., magneto; £52; allow £25 for 1907 single magneto, in good condition.

HALIFAX Motor Exchange. — Extended payments, exchanges; high-class machines purchased for spot cash. — 16, Westgate, Halifax. Telephone, 766.

BE SURE

you have a reliable mount before **EASTER!**

TO BE QUITE SURE,

exchange your old machine for

a **1908 Magneto TRIUMPH;**
a **1908 Single or Twin N.S.U.;**
a **1908 F.N. Lightweight or 4-c l.;**
or
a **1908 REX.**

We allow the utmost value for your old machine.

To get prompt possession of a high-class second-hand machine, and

Still be Quite Sure,

select one of the following. Sold under certificate bearing Director's signature:

Triumph, magneto, 3½ h.p., 1907	**£35**
Triumph, magneto, 3 h.p., 1906	**£30**
Quadrant, magneto, 3½ h.p., 1907, soiled	**£33**
Brown, 3½ h.p., 1907	**£28**
Vindec Special, 5.p., **Twin,** 1907	**£35**
Rex de Luxe, 5½ h.p., Roc clutch, shop soiled, black finish	**£33**
F.N. Lightweight, 1¾ h.p., 1907	**£25**
N.S.U. Twin, magneto, 4 h.p., 1907	**£30**

The following are in good running order:

2 h.p. **Minerva**	**£7**
3 h.p. **Fafnir**	**£8**
3 h.p. **Quadrant**	**£8**
2¾ h.p. **Excelsior**	**£9**
3⅜ h.p. **Rex**	**£10**
5 h.p. **Twin Antoine**	**£15**

PREMIER MOTOR AGENCY,

Aston Rd., BIRMINGHAM.

Telephone: 4310. Telegrams: Premiers, B'ham.

THE WORLD'S MOTOR CYCLE EMPORIUM.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Holds the finest and largest stock of second-hand cycles in the world. 300 to select from.

HALIFAX.—3½ h.p. light low Rex, spring forks, 26in. wheels, Longuemare; £14 17s. 6d. Snap this.

HALIFAX.—6 h.p. twin Rex, 26 by 2½ Clincher A Won, spring forks; £22; £16 allowed for powerful 1907 machine.

HALIFAX.—1906 3½ h.p. Rex, specially good condition, 26 by 2¼ Clinchers; £16 5s.

HALIFAX.—5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £29.

HALIFAX.—2 h.p. Humber, spray, trembler, chain drive, splendid climber; cheap, £9 10s.

HALIFAX.—3 h.p. Humber, spray, trembler coil, chain drive, suit tall rider; £10 10s.

HALIFAX.—3½ h.p. Simms, vertical engine, magneto ignition, easy starter, reliable; £17 10s.

HALIFAX. — 1907 twin Rexes, some almost equal new, no complicated speed gears required; £22; buy now, tomorrow may be too late.

HALIFAX.—1907 3½ h.p. Rex, spring forks, shop-soiled, accumulator ignition, tyres (2¼) unscratched; £19 19s.

HALIFAX. — 3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15 15s.

HALIFAX.—Very fine light low Rex, spring forks, Longuemare, in very good order; £14 17s. 6d.

HALIFAX.—4 h.p. twin-cylinder Werner, 26 by 2¼ Michelins, very smart mount; £18.

HALIFAX.—2¾ h.p. F.N., spray, 26in. wheels, vertical engine, very speedy, good condition; £14 10s.

HALIFAX.—3 h.p. Rover, 26 by 2¼in. Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

HALIFAX.—3½ h.p. 1906 Minerva, non-skid to rear, a grand winter's mount; £19 19s.

HALIFAX. — 2¾ h.p. Antoine, spray, trembler coil, accumulator ignition, girder forks; only £10 10s.

HALIFAX.—4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £18 10s., perfect order.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, and sidecar; £27 10s.

HALIFAX. — 5 h.p. Rex, Longuemare, trembler coil, Clincher tyres, Fish-back belt; no offers; £16 15s.

HALIFAX.—1907 Rex de Luxe, magneto, twin tyre, Roc clutch, spring forks; £29; exchanges wanted.

HALIFAX.—4 h.p. Bat, two-speed gear, done about 300 miles; £20.

HALIFAX.—Very fine 1906 Rex, spring forks, low frame, Longuemare, 2¼ tyres; £15 15s.

HALIFAX.—2 h.p., without name, and an orphan. Please adopt for £6 10s.; deserves good home.

HALIFAX.—£2 deposit and six monthly payments of 27s. 6d. secures 2¾ h.p. Antoine, 2¾ h.p. Kerry, 2¾ h.p. Excelsior, 2¾ h.p. Humber, 2¾ h.p. Ormonde, 2¾ h.p. M.M.C., 3¼ h.p. Rex; all guaranteed running order.

HALIFAX.—1907 3½ h.p. Minerva, 26 by 2¼ tyres, very fine order; £22.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments. See Tricar list. Telephone, 766. High-class machines purchased for prompt cash.—16, Westgate, Halifax.

MOTOR BICYCLES FOR SALE.

MAUDE'S List of second-hand motor cycles at present on hand; all guaranteed to be in perfect running order, and ready for the road.

MAUDE'S.—2¾ h.p. Vindec Special, 1907 model, like new, magneto; £22.

MAUDE'S.—6 h.p. Rex de Luxe, magneto, twin tyres, Roc free engine, like new; £28.

MAUDE'S.—5 h.p. Rex, spring forks, tremblers, 1907 model, like new, including tyres; £22.

MAUDE'S.—5 h.p. Rex, spring forks, beautiful condition; £19, our price.

MAUDE'S. — 4 h.p. Rushworth, 1907 model, 18in. frame, 2¼in. Clinchers; £18.

MAUDE'S.—2¾ h.p. De Dion, spray, long handle-bars, £12; 2 h.p. Antoine, £6.

MAUDE'S.—Lady's motor cycle, Vapp carburetter; £9.

MAUDE'S.—2¾ h.p. Automotor, wants slight additions, £5; 2 h.p. Minerva, spring forks, £8.

MAUDE'S.—£1 down and six monthly payments of 20s. secures 1¾ h.p. Minerva, 2 h.p. Antoine, or 2¾ h.p. Mitchell, all guaranteed ready for the road.

MAUDE'S.—Beautiful 1905 Rex, in perfect order and condition; £12.

MAUDE'S.—30s. down and six monthly payments of 35s. secures 3½ h.p. M.M.C., 2¾ h.p. Lloyds, 2¾ hp. De Dion, 2¾ h.p. Humber, or 2¼ h.p. Phœnix Minerva, as new.

MAUDE'S. — Ideal lightweights. Machines we can recommend as lightweights; 2 h.p. Minerva, £8; Ariel, 2½ h.p., £8; Mitchell, 2¼ h.p., £6.

MAUDE'S.—3½ h.p. Excelsior, M.M.C. engine, perfect, tyres practically new; £12.

MAUDE'S. — Minerva, 2 h.p., spring forks, £9; M.M.C., vertical, spray, 26in. wheels, trembler, £10.

MAUDE'S.—3 h.p. Noble, vertical, spray, very good tyres; £10.

MAUDE'S.—Humber, 2¾ h.p., a beauty; £9.

MAUDE'S.—Clarendon, 1906 model, 26in. wheels, ball bearing engine, enamelled green, absolutely like new; £15.

MAUDE'S. — Phœnix-Minerva, 2¼ h.p., good condition; £7.

MAUDE'S.—Minerva, 2¾ h.p., spray, very good tyres; a machine we can highly recommend; £12.

MAUDE'S.—Bradbury, 2 h.p., vertical, spray, £8; Ormonde, 2 h.p., £6.

MAUDE'S.—Twin Werner, 3½ h.p., a splendid climber, and very reliable; £18.

MAUDE'S.—Phœnix-Jap, spray carburetter, as new; £9.

MAUDE'S.— Ariel-Jap, 6 h.p., 26in. wheels, £23; 1907 Military Roc, £25.

MAUDE'S. — Rex, 26in. wheels, 1905 model, perfect; we guarantee this machine to be as new in every way; £15.

MAUDE'S.—Rex, low built, 26in. wheels, spray, trembler, good tyres, and a very fine puller; £12.

MAUDE'S.—Quadrant tandem, 3 h.p., nearly new tyres, spray, vertical, free engine; £9.

MAUDE'S. — Quadrant, new cylinder fitted, just overhauled, spray; a pity to miss this at £10.

MAUDE'S.—Lloyds, 2¾ h.p., B. and B. carburetter, £12; Humber, 2¾ h.p., spray, trembler, £10.

MAUDE'S Motor Mart guarantee all the above to be in perfect running order, and ready for the road before delivery.

IDEAL Mount for Beginner.—2 h.p. Minerva, first-class condition, absolutely reliable, spring forks, new Stanley Dermatine, stand, carrier, large lamp, horn, many tools, and spares, two new 40 amp. accumulators, tyres perfect, ready for the road; £15; owner buying twin.—Motor, Agnes Villa, Sudbury, Middlesex.

MINERVAS.
MINERVAS.
MINERVAS.

By making a speciality of these famous machines, we are able to offer best prices for old machines in exchange, and we respectfully solicit enquiries for these machines.

QUOTATIONS PER RETURN.
DEFERRED PAYMENTS ARRANGED.

Any other make supplied upon request.

MINERVAS were first in 1900.
MINERVAS are first to-day.

NOT FREAKISH, BUT SIMPLY UNIQUE.

2½ h.p. machine	**£29**
3½ h.p. ,,	**£32**
4½ h.p. ,,	**£39**
7-8 h.p. ,,	**£45**

R.O.M. contact breaker fitted to either of the latter-named free.

MAGNETO **£5** extra. SPRING FORKS **50/-**.

Guaranteed mounts, all carrying our written guarantee as to soundness and suitability for road use.

SECOND-HAND MOTOR CYCLES

1907 Vindec, magneto, 2¾ h.p.	**£22**
1907 Rushworth, 4 h.p.	**£18**
1907 Minerva, 4½ h.p.	**£24**
1907 Roc, military, 4 h.p.	**£25**
1907 Rex de Luxe	**£28**
1906 Werner, twin	**£18**

All the above models are like new, and perfect in every way.

EXCHANGES AND DEFERRED PAYMENTS ARRANGED.

TRICARS.

Riley Tricar, 4½ h.p., water-cooled, two speeds, condition as new	**£38**
Rex Triette, 6 h.p., cantilever seat	**£28**
Rex Triette, 3½ h.p., good condition	**£12**
Humber Tricar, perfect order	**£12**
Rex Tricar, foot brake, two speeds	**£13**

Send for List before buying TYRES.
3/- allowed for old cover, and **1/6** for tube in part for any make of tyres.
IMMEDIATE DELIVERY.

C.A.V. ACCUMULATORS.

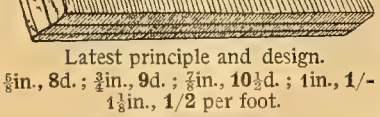
All guaranteed 12 months by the makers.
NOT THROWOUTS.

Rex size	**16/6** each
Ariel size	**15/9** ,,
Humber size	**15/-** ,,
Minerva size	**17/-** ,,

7/- allowed for your old accumulator in part payment.

Delivery per return guaranteed.

"ALBANY" BELTING.



Latest principle and design.
⅝in., 8d.; ¾in., 9d.; ⅞in., 10½d.; 1in., **1/-**; 1⅛in., **1/2** per foot.

MAUDE'S MOTOR MART,

Lilly Lane, Church St., HALIFAX.
Telephones—433 (Day), 904 (Night).

MOTOR BICYCLES FOR SALE.

QUADRANT, 2 h.p., Clinchers, spring forks, stand-carrier, fast, reliable; first reasonable offer accepted; also splendid leather jacket, 38in., lined throughout, 10s. 6d.—97, Stanhope Road, Darlington.

TRIUMPH, 3½ h.p. (magneto), first-class certificate 1,000 miles trials, extra good tyres (Excelsior), two belts, valves and other spares, only done 2,500, as good as new; £33, no offers.—W. Pople, Newhouse, Perth.

FOR Sale, Quadrant motor bicycle, 3½ h.p., 1906 model, spring forks, in excellent condition; cost £45, to be sold for £20; little used; owner gone abroad —Apply, General Stenhouse, Boroughfield, St. Albans.

3 h.p. Quadrant, spray, Clincher A Won tyres, long bars, footrests or pedals, stand and carrier, large gas lamp, tools, etc.; sale cheap, or exchange with cash for 5-6 h.p. twin.—E. Jenkins, 265, Gloucester Road, Bristol.

4 h.p. F.N., four-cylinder, perfect order, magneto, very fast, spring forks, nearly new Peter-Union studded back tyre, 26 by 2½, with two butt-end tubes; £24 net.—Apply, Box No. 9,178, *The Motor Cycle* Offices, Coventry.

WANTED, Bidders. — 3½ h.p. Rexes, spring forks, all in new condition, perfect, also Fulfords art cane trailer; offers; wanted, modern sidecarriages, in exchange for new cycles.—Smith, Ford Street, St. Mary, Nottingham.

4½ h.p. Twin Minerva, magneto, Norman two-speed gear and free engine, Chater-Lea, low seat, long handles, handle-bar control, heavy Continentals, spring forks, and 26in. wheels; great bargain, £30.—Sym, Broxburn, N.B.

ZENITH Bicar, 4 h.p., with free engine clutch and starting handle, Whittles belt, Brooks saddle, luggage carrier, in excellent condition; price £21 cash (lowest), thorough bargain.—Owner, c/o Zenith, 101, Stroud Green Road, London.

5-6 h.p. Twin Rex, spring forks, cantilever spring seat, pedals, footboards, good tyres, two belts, two pulleys, and spares, in excellent condition; trial given with sidecar; reasonable offer accepted; after 4 p.m.—337, Burdett Road, Limehouse, E.

TRIUMPH, 3½ h.p., late 1907, condition as new, with Frank's lamp, separate generator, horn, cyclometer, spares; £38, or without £36; bought 1908 same make.—Meguyer, Fairfield, Northumberland Road, Leamington. Or Sandpits Enamel Works, Birmingham.

STOCKPORT.—We are showing a range of Midget Bicars ("Built like a Car"), patent steel girder frame, at Belle Vue Show, Manchester; trial runs in grounds; prices from 28 guineas.—Lund and Davies, sole Northern Concessionnaires, Heaton Lane, Stockport.

3 h.p. Kerry, model de luxe, very fast, climb anything, long bars, footboards, very low, Brooks B90 saddle, Watawata belt, Fuller accumulator, trembler coil, new Clincher tyre on back, perfect condition, absolutely nothing required; £13 13s.—R. Martin, 31, Adelaide Square, Windsor.

FOR Sale, 5 h.p. twin Norton-Peugeot, 1907, makers recently overhauled engine, guaranteed perfect; approval; £30, or nearest; magneto, Druids, Clinchers (specials), Albion; too powerful for owner; bought lightweight; all accessories, lamp, horn.—No. 9,136, *The Motor Cycle* Offices, Coventry.

2¾ h.p. Minerva, magneto, spring forks, Bowden exhaust lift, carrier-stand, accessories, spares, front tyre 2¼ Continental, back studded, both new, appearance and works as new, easy starter; price £22; owner bought car; expert examination allowed. — Pitman, Dunbar, Coombe Road, Croydon.

TO Pace Followers. — Fastest pacing motor in England, 8 h.p. Buchet, fitted with pacing roller, long bars, also mudguards and brake, for use on road if desired, enamelled grey, scarcely used, in splendid condition, just the machine for the Stadium Track; £30.—S. Harris, 41, Albert Road, Stratford, E

MOTOR BICYCLES FOR SALE.

FAIRY, 2½-3 h.p., light, low, climb anything; £15. — 301, Seaside, Eastbourne.

MOTOR Bicycle, good make; about £12. —Rooke, Highfield, Heene Road, Worthing.

2¾ h.p. Singer, vertical, spray, low; £6 10s., offers or exchange.—Powls, Howden, Yorks.

CLEMENT, 1½ h.p., lightweight, in first-class order; £6 10s.—Delf, 17, Station Road, Beccles.

£6.—1¾ h.p. motor bicycle, good going order; bargain.—81, London Road, Southend-on-Sea.

3 h.p. Triumph, £16; 5½ h.p. twin Rex, with sidecar, £24.—5, Burlington Road, Tottenham.

CLYDE, 3½ h.p., M.O.V., magneto, in splendid condition; £12.—Guyver, Stratford-on-Avon.

TRIUMPH, 1907, 3½ h.p., magneto, in splendid condition; £30.—Guyver, Stratford-on-Avon.

TRIUMPH, 1907, 3½ h.p., magneto, new condition; £34.—Guyver, Stratford-on-Avon.

MINERVA, 2¾ h.p., standard, 1907, perfect condition; £17 10s.—Ormand, Beelsby, Grimsby.

3 h.p. Scout, powerful, fast, faultless; £8 10s.—P. Dowton, Park Lodge, Peckham Rye, S.E.

SALFORD.—3½ h.p. Minerva, genuine, nearly new; £18, or exchange.—132, Cross Lane, Salford.

2 h.p. Triumph-Minerva, in good going order; £8 10s.—Seen at Cathcart's, Rathmines, Dublin.

3½ h.p. Motor Cycle, splendid condition; offers; must sell.—6, Mew End Square, Hampstead.

2¾ h.p. Genuine De Dion, Longuemare, stand, etc.; bargain, £11.—Clark, 109, The Grove, Stratford.

TRIUMPH, 1907, magneto, brand new, 3½ h.p., with spare valve; £35.—Parker, Melbourne, Derby.

ROC, 3½ h.p., magneto, free engine, good order; great bargain, £19 19s.—41, Skelbrook Street, Earlsfield.

1907 3½ h.p. Rex, 2¾ tyres, nearly new; £15 10s.; exchange considered.—9, Sedgwick Street, Homerton, N.E.

3¼ h.p. Ascot, M.O.V., as new, non-skid Dunlops, spring fork; £14 10s.—Clark, 109, The Grove, Stratford.

£7 10s.—2¾ h.p. Kerry motor cycle, good running order; can be seen in City.—Motorist, Benfleet Hall, Sutton.

TRIUMPHS, 1908, early delivery; highest prices allowed for second-hands, any make.—Parker, Melbourne, Derby.

N.S.U., 3½ h.p., magneto, excellent condition, reliable, horn, lamp, numbers; £20.—Point House, Exmouth.

3½ h.p. N.S.U., 1907, magneto ignition, low frame, two-speed gear; £26; approval.—Eagles and Co., Acton, W.

3½ h.p. Whitley, accumulator, Longuemare, perfect running condition; £10.—11, Turville Road, Handsworth.

2¼ h.p. Minerva Lightweight, low build, in grand condition; £11.—Medcalf, 41, Springdale Road, Stoke Newington.

MOTOR Cycle and Sidecar, complete, coach-built body, in running order; £15.—G.F., 11, Chandos Road, Stratford, E.

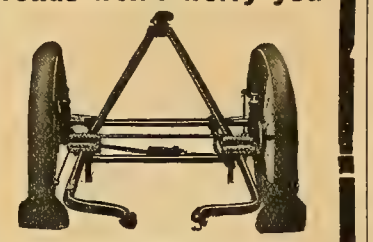
TRIUMPH, 1906, 3 h.p., magneto, Riche's tubes, grand condition; £26.—Harvey, 2, The Grove, Church End, Finchley, N.

5 h.p. Peugeot, No. 6 frame, spring forks, 2½ Palmers, nearly new; £28, cost £50.—8, Crowstone Parade, Westcliff, Essex.

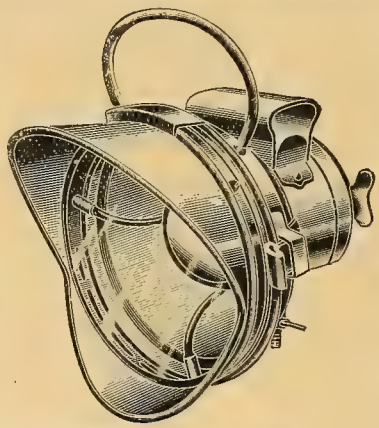
1908 Quadrant, 3½ h.p., magneto, new in November, not run 300 miles, fast, and good hill-climber, new condition; £36, lowest.—E. A. Deer, Stratford Place, Stratford-on-Avon.

WINTER

roads won't worry you



if you fit the **PHŒNIX** attachment
For Tricycle, £12 10s.
For Passenger, £15.
Lists by return.
PHŒNIX MOTORS, Ltd.,
Blundell St., London, N.

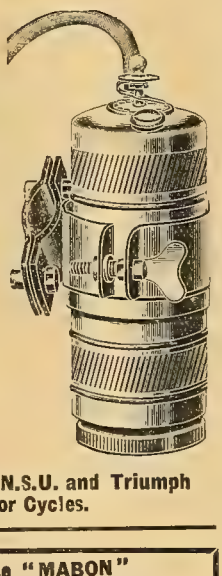


"THE LATEST" IN MOTOR CYCLE LAMPS.

Complete with Generator as shown, 25/-.

Mirror Lens Projector Headlight, same as advertised, plated, 30/-.

Magneto Covers only, 3/6.



PERCY CYCLE CO., LTD.,
Northumberland Street,
NEWCASTLE-ON-TYNE.

Sole Agents for N.S.U. and Triumph Motor Cycles.

The "MABON" FREE ENGINE PULLEY & CLUTCH

enables your machine to climb hills which otherwise it would not. Guaranteed to start a 3 h.p. motor bicycle with rider mounted on any steep hill from standstill. Fits any machine without alterations.
Price **55/-** complete.
Order early to ensure prompt delivery.

Agents: Service Motor Co., 292, High Holborn, W.C.

MABON MOTOR WORKS,
54, High Road, North Finchley, N.

MOTOR BICYCLES FOR SALE.

3 h.p. Humber, trembler, spray, good tyres, fast, reliable, guaranteed perfect; £11 10s.—200, Church Road, Willesden.

3¼ h.p. Humber, in good condition, two accumulators, specially built of agent; £15.—Carter, Rolling Mill Street, Walsall.

4 h.p. C.I.E., magneto, spring forks, 2½ tyres, new condition, spares; any trial; best offer.—74, Croydon Road, Beckenham.

TRIUMPH, 2½ h.p. Jap, good order, three accumulators and accessories; £15 10s. cash.—Hutton, Mapledurwell, Basingstoke.

5 h.p. Kerry, very powerful, S.N.P. stand, Dermatine, perfect condition; £23.—53, Kingsley Avenue, West Ealing, London.

3½ h.p. Brown, 1907, new condition, variable pulley, Whittle belt, Palmer tyres; £22; approval.—Eagles and Co., Acton, W.

TRIUMPH, 3½ h.p., accumulator ignition, in good order; any trial given; a bargain, £15.—Bradley, Adega, Huddersfield.

2¾ h.p. Genuine De Dion throughout, Crypto frame, new tyres, Rich's tube, just overhauled; £14 14s.—79, High Street, Ashford.

3½ h.p. Vindec Special, magneto ignition, Palmer tyres, B100 saddle; £23; approval.—Eagles and Co., High Street, Acton, W.

LATEST 6½ h.p. Chater-Lea Motor Cycle and Sidecar, magneto, spring forks, practically new; £26.—J. Ruby, 169, Mayell Road, Brixton.

1¾ h.p. Minerva-Excelsior, no fault, fast, spray, spring pillar, lamp, spares; £7 10s.—D. Fellows, 49, Hertford Street, Mayfair.

GENUINE Bargain.—6 h.p. Riley, twin, magnificent condition, luxuriously fitted; photo sent; £30.—Potter, Blenheim Square, Leeds.

4½ h.p. Four-cylinder F.N., latest model condition as new; price £28, genuine bargain.—Wauchope's, 9, Shoe Lane Fleet Street, London.

3½ h.p. Minerva, spring forks, good condition, new Pullman's non-skid on back wheel; £18.—W. Dale, 21, Lansdowne Road, Old Charlton, Kent.

TRIUMPH Motor Cycles.—Send for 1908 catalogue. — Agents, Bright and Hayles, Camber Cycle and Motor Works, Church Street, Camberwell.

3½ h.p. Minerva, M.O.V., £10 10s.; 3½ h.p. Bat, spring frame, £12 10s., requires overhauling. — 142, Lewisham High Road, New Cross, S.E.

2¾ h.p. Mitchell, low built, perfect running order, lamp, horn, stand etc.; £8 10s., or near offer.—Upton, 31 Islingwood Street, Brighton.

3½ h.p. Jap, Chater fittings, duplicate feed, new Model de Course or back, almost new machine; £23 lowest.—221, Cheltenham Road, Bristol.

2¾ h.p. Minerva, Longuemare, spring seat, Bowden exhaust, 26in. wheels carrier stand, fine condition; £8 15s.—Hall, Richard Street, Northwich.

2½ h.p. Ariel Lightweight, little used good throughout, £11; also 2 h.p. Eadie-Minerva, sound condition, £7; any trial allowed.—Swallow, Halesowen.

BARGAIN.—3 h.p. Pebok, used once Longuemare, Peter-Unions, uncut chain drive, free engine.—Garaged at Cooper's, Loughborough Road, Brixton.

TWIN Vindec, magneto, Truffault suspension, Model F., enamelled 19 cream colour all over, scarcely used £35, splendid bargain.—Longford, Uddingston.

N.S.U. 6 h.p. Twin, with N.S.U. rigid sidecar, exhibition model, cost over £80 four months ago, magneto ignition two speeds, free engine, spring forks, and 2½in. tyres, back studded, one spare, perfect, not soiled; trial by appointment price £65.—No. 9,187, *The Motor Cycle* Offices, Coventry.

MOTOR BICYCLES FOR SALE

FOR Sale, 3 h.p. motor cycle, Quadrant, very reliable machine; £10.—Budd, Trotton, Petersfield.

STAMFORD HILL.—3½ h.p. Brown, £16; 3½ h.p. Bat, £16; 4½ h.p. twin Minerva, spring forks, £26 10s.; 3½ h.p. twin Werner, £16 10s.; 3 h.p. Trent, Chater-Lea, £12; 3¼ h.p. M.M.C., £11 10s.; 2 h.p. Rex, 2¼ h.p. Humber, £8 each; all in good condition; trial any time.—128, High Road, Tottenham.

3½ h.p. Centaur, M.O. valves, low frame, two-speed gear, Clinchers, Longuemare carburetter, two accumulators, stand, spring seat-pillar, condition as new, and perfect, will climb any hill, not been 1,000 miles; owner no more use for same; got car; cost £85, take £18.—Holmwood, Cowleigh Road, Malvern.

TWIN Sarolea, 6 h.p., Clipper tyres, 26 by 2¼, footboards, pedal band brake, Brooks B100 saddle, two belts, two accumulators, lamp, horn, tools, etc., spring forks, everything in new condition; photo; £21; light motor cycle or push bike in part payment.—Sibley, 32, Fulham Palace Road, Hammersmith.

FOR Sale, 3½ h.p. Triumph, 1907, London-Edinburgh gold medal, winner Triumph cup, etc., has taken 13 stone up Sutton Bank and Porlock, in perfect order, with many up-to-date improvements, two spare covers, and Advance adjustable pulley extra, two belts; £37 10s. — J. B. Hart-Davies, Bank Street, Rugby.

BETWEEN Ourselves.—Rex de Luxe (unridden), black finish, £35; shop-soiled 3½ h.p. 1907 Rex, spring forks, magnificent mount, £19 19s.; twin Rex, £22; 3 h.p. M.M.C., £13; twin Werner, £19 19s.; 3½ h.p. Hobart, £14; 3 h.p. Givaudan, £14 10s.; 3 h.p. Clarendon, £13 10s.; 2¾ h.p. De Dion, £12 10s.; 7 h.p. Peugeot, £30, nearly new; 3 h.p. Rover, £13 10s.; 4 h.p. Antoine, £16 10s.; 3½ h.p. magneto Simms, £17 10s.; 3½ h.p. Jap, £18; 4 h.p. Jap, £23, torpedo; twin Antoine, £25; 2 h.p. Minerva, £7; 2 h.p. Quadrant, £8; 2 h.p. Standard, £8; 2 h.p. Werner, £6 10s.; 2½ h.p. Kerry, £9; 2¾ h.p. Antoine, £9 10s.; 2 h.p. magneto Simms, £9; 3 h.p. Hobart, £10; 3 h.p. Rover, £13 10s.; 3½ h.p. Rex, £9 10s.; spring fork Rex, £14 10s.; 5 h.p. Rex, £18; 3½ h.p. Kerry, £18 10s.; 2¾ h.p. F.N., £14 10s.; 2¾ h.p. De Dion, £14 10s.; 3½ h.p. N.S.U., magneto, spring forks, £24; Rex de Luxe, £29; twin Werner, £16; twin N.S.U., £25; 3 h.p. M.M.C., £13; 3 h.p. Humber, £10 10s.; 3½ h.p. Minerva, £18 10s.; soiled, £23; twin Alcyon, £22; 1¾ h.p. Minerva, £4 10s.; 1¾ h.p. Quadrant, £6; 3 h.p. Lloyds, £14 10s.; 2½ h.p. Excelsior, £6; 4 h.p. Coronet, £16; cash, exchange, or extended payments.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

TRICARS FOR SALE.

MAUDE'S.—Humber tricar, good tyres, spray, chain drive, perfect running order; a bargain, £14.

MAUDE'S.—Humber, similar to above, but Phelon-Moore two-speed, coach-built forecar; £20.

MAUDE'S.—Riley, 4½ h.p., water-cooled, two speeds, non-skid to rear, perfect order, and like new, classy and cheap at £37.

MAUDE'S.—Rex tricar, 3 h.p., two speeds, very good puller, and perfect throughout; £15.

MAUDE'S.—Rex tricar, 3½ h.p., convertible to single machine, foot brake, a very reliable mount; £14.

MAUDE'S.—Rex Triette, 6 h.p., cantilever seat, twin; £29 10s.; exchanges or deferred payments on any of above.—Maude, Lilly Lane, Halifax.

4½ h.p. Riley, w.c., bucket seats, many extras; £36, exchange.—Brockley Cycle Works, S.E.

8 h.p. Open Frame Tricar, twin Stevens engine, two speeds, reverse, wheel steering, double front seat; £35.—Below.

5 h.p. Riley Tricar, water-cooled, two speeds, car tyres; £32.—Below.

3½ h.p. Minerva Tricar, M.O.V., Longuemare carburetter, fan-cooled; £.o —Farrar, Square Road, Halifax.

SECOND-HAND MOTOR CYCLES,

Light Cars, and Tricars are taken in part payment for new machines by leading makers, as Triumphs, Quadrants, Vindecs, N.S.U.'s, F.N.'s, Minervas, Ariels, Browns, Motosacoches, Moto-Reves, Bats, Peugeots, Griffins, Lurquin & Couderts, etc., etc.

February's Clearance List.

6	h.p. twin-cylinder ANTOINE	20 Guineas
4	h.p. twin HAMILTON	£12 12
3	h.p. ARIEL, vertical engine	10 10
3½	h.p. N.S.U., magneto ignition	20 0
2	h.p. CHASE, Decart engine	16 10
3½	h.p. BAT, only once used, spring frame	25 0
3½	h.p. 1905 REX	12 10
3½	h.p. No. 1 ARIEL	15 15
3	h.p. FAFNIR	15 0
4	h.p. ROC, Stephens engine	31 0
2¼	h.p. TRIUMPH	14 10
5	h p VINDEC SPECIAL, magneto	28 0
3½	h.p. KING, Chater-Lea fittings, M.M.C. engine	12 10
2	h.p. DE DION, New Hudson	10 10
2¾	h.p. VINDEC SPECIAL	14 10
3½	h.p. MINERVA, 1907	19 19
2¾	h.p. MINERVA	10 10
4	h.p. twin-cylinder, 1907 WERNER	15 15
3½	h.p., magneto ignition, spring forks, TRIUMPHS, new	41 0
4	h.p. M.M.C. motor cycle, vertical engine, spring forks, in first-class condition	15 0
3½	h.p. VINDEC SPECIAL, 1907 model, with two-speed gear and magneto ignition	35 0
4	h p ROC, 1907 model, with two-speed gear	29 10
3½	h.p. PHŒNIX, with two-speed gear	23 0
3	h.p. SINGER, ball bearing engine	19 0
5	h.p. VINDEC SPECIAL	38 0
2	h.p. MINERVA	7 10
3½	h.p. 1907 MINERVA	21 0
1¾	h.p. MINERVA	5 15
1¾	h.p. Light F.N.	25 0
2¾	h.p. PHŒNIX	17 10
5	h.p. VINDEC SPECIAL, with two-speed gear	48 0
3¾	h.p. JEHU, Fafnir engine	13 0
2½	h.p. new light ARIEL, latest model	27 10
2½	h.p. KERRY	10 10
3½	h.p. QUADRANT, 1907 model	20 Guineas
2¼	h.p. TRIUMPH	16 10
2¾	h.p. ORMONDE	6 10
3½	h.p. MINERVA, in Chater-Lea frame	17 10
3½	h.p. M.M.C. motor cycle	10 10
2½	h.p. Lady's CLEMENT-GARRARD	12 10
3½	h.p. 1904 REX	10 10
3½	h.p. QUADRANT, magneto	22 10
3½	h p, 1907, magneto, TRIUMPH	32 13
5	h p. 1908 twin-cylinder REX DE LUX, magneto, new	35 0
1¾	h.p. 1907, light weight, magneto, F.N.	27 10
6	h.p. twin-cylinder, magneto, BAT, Jap engine	32 10
3	h.p. 1906, magneto, TRIUMPH	25 0

TRICARS.

8	h.p. TWIN REXETTE, two speeds, as new	£55 0
5	h.p. REXETTE, two speeds, good order	35 0
6-8	h.p. LURQUIN & COUDERT, two speeds	32 10
3½	h.p. HUMBER, free engine clutch	17 10
5	h.p. twin-cylinder REX	25 0

WAUCHOPE'S,

9, Shoe Lane, London.

9, Shoe Lane, Fleet Street, London. Wauchope's have still a few 1907 Brand New MAGNETO TRIUMPHS left. . . . . **Price £41.**

TRIUMPH Motor Cycles can only be supplied through their agents where represented.

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Telephone No. 5,777, Holborn.
Telegrams, "Opificer, London."

ALL MACHINES ON THIS LIST ARE OFFERED SUBJECT TO BEING STILL UNSOLD ON RECEIPT OF ORDER.

TRICARS FOR SALE.

HALIFAX.—Quadrant Carette, 6 h.p., open frame, wheel steering, two speeds, coach-built, latest model, £35, cost £100.

HALIFAX.—6 h.p. twin-cylinder Advance tricar, wheel steering, only used for trials; bucket seat; £35.

HALIFAX.—5½ h.p. Rex Triette, spring frame, free engine clutch, very reliable; £29 10s.—Below.

HALIFAX.—4 h.p. Rex tricar, Phœnix two-speed gear, good running order £21.

HALIFAX.—4½ h.p. Rex tricar, two speeds, free engine, very good order and condition; £21.

HALIFAX.—4½ h.p., water-cooled Wolf, two speeds; £37 10s.; condition almost new.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built, four-speed gear; £37 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

REX Throughout 3½ h.p. Tricar, perfect, reliable; £14 10s.—D., 103, Denmark Road, Camberwell.

6 h.p. Twin Antoine Tricar, perfect order; nearest offer £22.—Brooker, Grotto View, Weybridge.

FOR Sale, tricar, 10-12 h.p., two-cylinder, tonneau, Cape cart hood; cost £225 1906, sacrifice £35. — Hillrise, Cuckfield, Sussex.

£25.—Tricar, Kerry, Phelon and Moore two speeds, handle starting, fan-cooled, good working order. — Nickolson, Ryton Street, Worksop.

FOR Sale, light tricar, 3½ h.p. Minerva, magneto, Kent three-speed gear and clutch, footboards; £28. — Billinghurst, Godwins, Sutton.

7-9 h.p. Peugeot, in good condition; £25, or offer; would take 3½ h.p. magneto in exchange. — Griffiths, 3, Darlington Road, Ferryhill, Durham.

9 h.p. Riley (1907), three speeds and reverse, spare tyres, and complete equipment, perfect condition. — P., 52, Queen Victoria Street, London.

6-8 h.p. Lurquin and Coudert Tricar, Bozier two-speed gear, water-cooled twin engine; £32 10s.; very reliable.—Wauchope's, 9, Shoe Lane, London.

KERRY Tricar, 5 h.p., twin, two-speed, good condition; £35, or 3 h.p. cycle and cash; trial any time.—Millis, 160, Manor Park Road, Willesden Junction.

FOR Sale, Riley de Luxe tricar, 6 h.p., twin, three speeds and reverse, in splendid condition; cost £147, will accept £70.—56, South Side, Clapham Common.

4-4½ h.p. Bat (85 by 85 M.M.C.) Tricar, spring frame, Phœnix two-speed, Brooks band, foot brakes, B100; £25; motor cycle part.—Kennard, New Eltham, S.E.

BRADBURY, latest 1907, 4½ h.p., two speeds, wheel steerer, bucket seats, condition as new, three lamps, and horn; £35.—John Hartley, Church Street, Barnoldswick.

6 h.p. Quadrant Carette, open frame, wheel steering, two speeds, chain drive, bucket seats, splendid condition; £38; good motor cycle part.—43, Kilmorie Road, Forest Hill.

5-6 h.p. Twin Rex Triette, two speeds, £19; 3½ h.p. Bat, spring frame, £15 10s., requires overhauling; 3½ h.p. Humber, two speeds, £13.—142, Lewisham High Road, New Cross, S.E.

REXETTE, 6 h.p., water-cooled, two speeds, perfect; £35, or consider twin bike part exchange; will drive reasonable distance to purchaser.—150, Turney Street, Nottingham.

REXETTE, 8-10 h.p., seats three, lamps, horn, spares, climb anything, Shaw band on back wheel, two speeds; £45; motor cycle part exchange.—Roberts, 420, Park Road, Soho, Birmingham.

4½ h.p. Humber Tricar, water-cooled, two speeds and free engine, chain drive, coach-built, car tyre on back, as new, with spare rear tyre, tools, etc.; £35.—Edwards, Nantwich Road, Crewe.

TRICARS FOR SALE.

TRY and see the Phœnix Quad at £46 if you want a bargain. See under Cars.—70, Walworth Road.

10-12 h.p. Lagonda, water-cooled, three speeds, accumulator, magneto; £85.—Scott, 45, Baalbec Road, N.

3½ h.p. Minerva Tricar, Kent three-speed gear, Palmer tyres; £20 to clear.—Horner, 28, Burley Road, Leeds.

5 h.p. Quadrant Tricar, two engines, in perfect condition, coach-built front seat; any trial; £27, or offer.—Pembroke, Fairleigh Drive, Leigh-on-Sea, Essex.

3 h.p. Humber Tricar, Dunlop car tyres, good as new, splendid condition, spare valves, etc., wind scoops; any reasonable offer accepted.—Particulars, Siddall, Burnblea Street, Hamilton.

BEESTON Humber, 4½ h.p., water-cooled, two speeds, coach-built, new condition, non-skid, new spare tyres, finest accessories; exceptional bargain, £45. — Randall, Clone, Hampton-on-Thames.

RILEY Tricar, 4½ h.p., two speeds, coach-built, two bucket seats, car tyre, with studded band, on back wheel, four lamps, nearly new; for quick sale, £45. — E. Marchant, Brigstock Arms, Thornton Heath.

RILEY, 4½ h.p., water-cooled, coach-built front, and Brooks patent bucket driving seat, splendid order, climbs Netherhall Gardens easily; £30, or reasonable offer.—Delaney, 101, Sutherland Avenue, W.

CENTAUR Tricar, 4 h.p., in perfect condition, tools, pump, Lucas's lamps, horn, spares, etc.; £30 cash; any trial arranged, or expert inspection invited. Telephone, 514.—McLean, Duke Street, St. Helens.

5 h.p. Rexette Tricar, water-cooled, open frame, wheel steering, two speeds, recently thoroughly overhauled; price to clear, £35; take a motor cycle in part payment. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

FOR Sale, great bargain, 4½ h.p. tricar, Trimo coach-built, Chater-Lea frame and fittings, four-speed Osborne pulley, lamps, spare cover and parts, perfect running order; trial given; £18 10s.—A. Barnett, 34, Kenilworth Court, Putney.

REXETTE, 5 h.p., two speeds, wheel steering, just been thoroughly overhauled and renewed, tyres perfect, new Brooks band and Riche tube on back, new accumulator, lamps, and horn; £40. —Patterson, 13, George Street, Edinburgh.

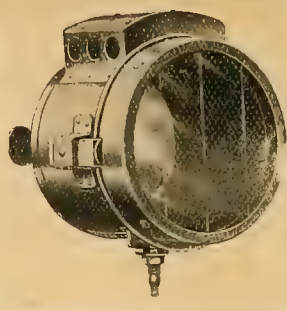
TRICAR, 3½ h.p., Simms magneto, splendid condition, new tank and belt, upholstered red leather, folding stand, tyres perfect, non-skids; bargain, 16 guineas, or exchange motor cycle and cash.—Nicholls, Buttsbury, Ingatestone.

EXTRAORDINARY Bargain.—Powerful 9 h.p. Rexette, wheel steering, seats three, two speeds, climb any hill, large carrier, perfect order, water-cooled, beautifully sprung; cost £120, lowest price £45; trial by appointment.—Foyle, 135, Charing Cross Road, W.C.

FOR Sale, Tricar, 5-6 h.p. Antoine engine, single drive by 7-8in. Whittle's belt, Peter-Union tyres, 28in. by 2¼in. nearly new, new twin Bassee-Michel trembler coil, 20 a.h. accumulator, good running order; £20. — Spencer, 93, Blenheim Crescent, N. Kensington, W.

TRIETTE, Rex, 5-6 h.p., twin, fast, and in perfect condition, including tyres, wipe fitted, cantilever seat, many improvements; bargain at £20, no offers; would entertain exchange for 3½ h.p. Triumph, or N.S.U.; cash adjustment. — 9,182, *The Motor Cycle* Offices, Coventry.

5 h.p. Twin (Kerry), 1907 Forecar, Chater-Lea frame, specially built for owner regardless of expense, unique springing of frame, petrol capacity four gallons, lubricating half gallon, two-speed and reverse, handle starting, R.O.M. commutator, upholstered cane forecar, Autoclipse lamp and generator, foot pump, new Xl'all spring saddle, three accumulators, new Palmers, 2½ on front, 2½ cord on back, two spare belts, car horn, etc.; lowest price £45.—Read, c/o Ayden, 17, Blackstock Road, Finsbury Park.



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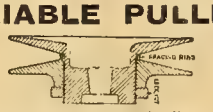

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ADVERTISERS—Please note that Friday is the latest day we can receive advertisement copy for the following week's issue

TRICARS FOR SALE.

STAMFORD HILL. — 5 h.p. w.c. Oppermann three-speed tricar, £29 10s.; 4 h.p. two-speed Phœnix Trimo, £29 10s.; 4½ h.p. Kelecom, £22; 3½ h.p. M.M.C., £10; 3¼ h.p. Rex, Millford, £15; all guaranteed and bargains; trials at any time; we live on a hill.—128, High Road, Tottenham.

ZENITH Tricar, latest model, only used for few trial runs, re-enamelled and re-plated, thoroughly tuned up, 6 h.p. Jap engine, chain drive, list price 72 guineas nett cash, accept 60 guineas (lowest); thorough bargain. — Zenith Motors, Ltd., 119, Stroud Green Road, Finsbury Park.

REXETTE, 8-10 h.p., twin-cylinder, new November, 1906; cost £135; seats three, Napier green, red leather upholstered, silver plated fittings, all copper radiator, good condition, irreversible steering, new non-skids on all wheels; any reasonable trial run given; £48, or nearest offer.—Milburn, Dalton, Croft-on-Tees.

SIDECARS AND FORECARS.

BOOTH for Sidecars; large stock; brand new Mills and Fulford 1908 models.

BOOTH'S Advice. Don't allow your wife to ride in a cheap new sidecar, the £3 19s. 11½d. jerry-built type.

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BOOTH.—Mills-Fulford Sidecars. Castor wheel; popular prices; Mills-Fulford sidecars, rigid type, popular prices.

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BOOTH.—Mills-Fulford Sidecars. Mills-Fulford sidecars, Castor wheels, Castor wheels. Cash or exchange.

BOOTH, Coronet Works, Wade Street, Halifax. Telephone, 198Y.

SIDECAR.—See Wanted column.—Summerfield, Newport.

£3 3s. Ariel Coupler, equal to new; 25s. —Elly, Glen Lea, Uttoxeter.

FIVE Lovely Sidecars, some quite new, 26 and 28in. wheels; cheap for cash. —Farrar, Square Road, Halifax.

MONTGOMERY Flexible Sidecar, 26in. wheel, Palmer tyre; £4 10s.—Johnson, 179, Lea Road, Wolverhampton.

FORECARRIAGE, sidestays, band brakes, good condition; £4 10s.—190, Mellison Road, Tooting.

PHŒNIX Attachment, basket, side stays; cheap, cash, or exchange motor. — 134, Highgate Road, Kentish Town.

MONTGOMERY Sidecar, compensating, practically new, 26in.; approval; £5.—"Kenilworth," Newport Road, Stafford.

FOR Sale, Rover forecar, complete, 26in. by 2¼in. Palmers, cane chair, in good condition; £7.—10, Thornhill Road, Leyton.

MILLS-FULFORD Sidecar, fit any frame, 26in. Palmer, upholstered; bargain, £5. — 17, Oakleigh Villas, Waltham Cross.

N.S.U. Forecarriage, 24 by 2¼ Continentals, two band brakes, upholstered green; £5 10s., or near offer.—Burrill, 28, York Road, Leeds.

SIDECAR, splendid condition, fit any frame, 26in. Dunlop motor tyre; only wants seeing; sacrifice £4 15s.—C. A. Edgar, 123, Holloway Road, London, N.

FORECAR Attachment, 26 by 2 wheels, wing mudguards, foot brakes, steering head, art cane seat, upholstery perfect, spare cover; £5, bargain.—Burton, Raleigh Bakery, Walsall.

STAMFORD HILL.—Our famous sidecars are moving; order now; rigid type; 24, 26, or 28in wheel, suit any machine; £4 18s. 6d.; any type built to order.—128, High Road, Tottenham.

REPAIRERS.

BELLENGER will tune up your machine to give full power; moderate charges.—Queen's Buildings, Old Bailey.

RELIABLE Repairs.—Cylinders re-bored, fitted with new piston, complete, 15s.; new piston, 7s. 6d.; rings, 2s. 6d. per set.—Gas Engine and Motor Works, Forest Hill, S.E.

EXCHANGE.

EXCHANGE Ariel Coupler, nearly new, for decent push cycle.—W. Ashby, Bredgar.

EXCHANGE Phonograph, 60 records, cost £7 15s., for motor bike.—71, Tanfield Road, Croydon.

EXCHANGE for good motor cycle new 10ft. billiard table.—Motor, 751, Old Kent Road, London.

EXCHANGE Lady-back tandem and cycle for motor.—Eagles, 118, Tottenham Road, Kingsland.

EXCHANGE 3 h.p. Quadrant, in splendid order, for gent's cycle and cash.—34, Bellenden Road, Peckham.

PERRY'S Chain-belt, little used, for motor cycle back Bowden brake.—Dymoke, Chesham Villas, Pinner.

1906 Rex, spring forks, very fine machine, for up-to-date lightweight.—Box 9,184, *The Motor Cycle* Offices, Coventry.

EXCHANGE 2½ h.p. Jap (vertical) Engine, carburetter, and cash for 3½ or 5 h.p. twin.—61, Trafford Road, Salford.

F.N., four-cylinder, 3½ h.p., 400 miles; garaged London; exchange 1¾ h.p. F.N., cash.—Watson, 51, Windmill Road, Luton.

BROOKS B125 and Geough G1 Saddles, both new, for Brooks spring seat or extra large saddle. — 78, Hatton Drive, Belfast.

3½ h.p. M.M.C., Perry frame and fittings, practically new; accept good pedal bike and little cash.—179, Lea Road, Wolverhampton.

PUSH Bike, two-speeds, gent's 18 ct. ring, silver lever watch, and cash, for good motor bike. — Warde, Chapel Street, Knottingley.

HALIFAX.—What do you want? We exchange motor cycles, tricars, cars, or 1908 Rex and N.S.U. models; list on application.—16, Westgate, Halifax.

NEW Rex de Luxe, black finish, twin, magneto, Roc clutch, twin wheels, for single magneto Rex and £15 15s.—Box 9,183, *The Motor Cycle* Offices, Coventry.

1907 Four-cylinder F.N. wanted; exchange £10 and 2¾ h.p. Vindec Special, F.N., excellent condition.—Johnstone, 2, Baillies Causeway, Hamilton.

TRIUMPH Cycle, three-speed gear, like new, for not less than 3½ h.p. engine, silencer, carburetter, good make. —Harding, Halberton, Tiverton, Devon.

FOUR-CYLINDER F.N.; exchange for 3½ h.p. Minerva, or Brown, magneto preferred; must be nearly new. — 55, Mount Pleasant Road, Stroud Green, N.

GRAND Brindle, or Brindle Pied Bull Bitch, good pedigree, for motor cycle, or sell £15; part cash given for good one.—W. Wilby, Gildersome, Leeds.

EXCHANGE 3½ h.p. Raleigh, Fafnir engine, in good condition, for junior push bike, suit boy 8, and cash.—Willett, Abinghall, All Saints' Road, Ipswich.

EXCHANGE Clyde magneto and Griffon, both 2¾ h.p., excellent condition, for new 1908 Triumph, Vindec; balance in cash.—Motor Depot, Green Street, Cambridge.

MAUDE'S. — We want your present mount in part payment for any make of new or second-hand. We are here to accept exchanges.—Maude's, Lilly Lane, Halifax.

4 h.p. Aster Bike, nearly new, and 2¾ h.p. De Dion tricycle, good condition, for single-seated runabout, Eagle or Barnes preferred.—Needham, Shalesmoor, Sheffield.

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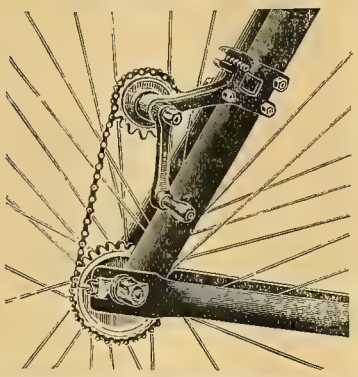

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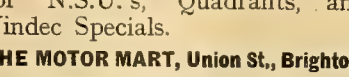

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A. C. WRIGHT, 5, Lorrimore Buildings, Walworth, S.E.

EXCHANGE.

2¾ h.p. F.N.; £11; in good condition; exchange, or sell, for gent's cycle. —159, Plashet Road, West Ham.

EXCHANGE Steam Electric Light Plan, accumulators, etc., for good motor cycle, or sell £20.—46, London Road, St. Albans.

WE Will Exchange your old machine for any new one you desire to possess; liberal terms.—128, High Road, Tottenham.

CONTINENTAL Butted Tube, 26in. by 2in., Gough motor saddle (both new), for Brooks B100 new condition.—139, Cattell Road, Birmingham.

HOWARD, 2½ h.p., good condition light, simple, reliable, for good make, three-speed push bike; sell £10.—Jubilee House, Stoke Golding, Nuneaton.

8-10 h.p. Four-cylinder Leader, two-seater, splendid condition throughout, new gears; sacrifice 85 guineas; photo; tricar or motor cycle and cash considered.—6, Poulton Road, Southport.

EXCHANGE, 6½ h.p. International, two-seater car, three speeds and reverse, perfect order, for tricar and little cash, or sell £25.—Stevens, 4, Goldhawk Mews, Shepherd's Bush.

EXCHANGE for good motor cycle or tricar, new furniture, any description, direct from the works, valued wholesale.—Furniture manufacturer, 3-5, New Norfolk Street, Shoreditch, London.

EXCHANGE half-plate camera, Busch lens, three D.D. slides, as new, and all accessories, also push cycle, almost new, for good 3 h.p. motor cycle, or sell £13.—J. R. Rothwell, 76, Canning Street, Burnley.

EXCHANGE.—1907 2½ h.p. Jap, very low, long bars, Chater-Lea throughout, round copper tank, Longuemare, smart, powerful machine, as new; exchange for piano.—Duckett, 2, Lynton Villas, Worle, Somerset.

EXCHANGE South African grey parrot, thoroughly acclimatised, splendid talker, long sentences, whistles, sings, good mimic, for good magneto, or anything motoring.—Maxfield, Burnley Road, Padiham.

QUADCAR, 3 h.p. De Dion engine, gear driven, wheel steering, bucket seat, tyres in good condition; will exchange for Rex de Luxe, Triumph, or other good make, or sell £25.—Morgan, Castleton Villa, Pontypridd.

9, Shoe Lane, Fleet Street, London.—Wauchope's arrange exchanges, Motor cycles, light cars, or tricars taken in part payment for new 1908 Triumphs, N.S.U., Bats, Quadrants, Vindec Specials, Rocs, F.N.'s, Minervas, etc.

EXCHANGE 2¾ h.p. Chater-Lea, 26in. wheels, first-class condition, low built, and Chater-Lea cross frame push pedal, with new Palmer special on back, and new roadster on front; also pair of plated wheels, with two-speed hub to fit same, for good 3½ h.p. or twin.—7a, Strathville Road, Earlsfield.

EXCHANGE.—Will give splendid full-plate camera, complete, with slides and adapters, tripod, Bee meter, and all accessories, also good push bike, Coventry Challenge, nearly new, and little cash, for good high powered motor cycle, late pattern; no rubbish.—Swinnerton, Adelaide Street, Fenton.

FOR Exchange, Prested trembler coil, condition as new, for good plain coil, no rubbish; also one cover, A Won, with Pullman non-skid, scarcely touched, size 26 by 2; also one motor lamp, Miller's Edlite, with number plate, as new, for anything useful; good motor inner tubes, 26 by 2in., preferred. — Thos. H. Downs, Holbeach, Lincs.

EXCHANGE 4½ h.p. Lagonda Tricar, air-cooled, belt-driven, new Palmer cord to back wheel, others only run few miles, first-class condition, equal to new, front wheel, with spring forks, to convert to cycle, Benz car, belt drive, artillery wheels, new tyres to back, in good condition, for high powered tricar, or sell.—9,168, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

EXCHANGE.

EXCHANGE Phœnix Trimo, Minerva, 3½-4½ h.p., Anglian two-speed, Brooks non-skid on back wheel, starts like a car, and will climb any hill, for up-to-date motor cycle, cash adjustment.—Tobacconist, 110, Cross Lane, Salford.

WANTED.

WANTED, pair Rex 1905 rigid front forks, cheap.—25, Northam Road, Southampton.

WANTED, High-grade Motor Cycle for cash.—Dalton, 120, Pershore Street, Birmingham.

PAIR Xl'all spring forks, 1908 pattern, plated, good condition.—Whittard, Potter's Bar.

WANTED, spray carburetter, for 3 h.p., sound, economical.—A., The Knowl, Abingdon.

WANTED, motor cycle, good make and condition, cheap. — Rust, West Mersea, Colchester.

WANTED, 3½ h.p. Twin Engine, 26 by 2½ Chater back wheel. — 221, Cheltenham Road, Bristol.

REX Spring Forks wanted, complete, perfect.—J. Lewis, 23, Arden Road, Birchfields, Birmingham.

WASTE Indiarubber, every description; highest prices paid.—Union Rubber Co., Calls, Leeds.

WANTED, second-hand internal expansion or band brake.—Millward, 11, Regent Terrace, Cambridge.

HALIFAX.—High-class machines purchased for prompt cash.—Halifax Motor Exchange, Westgate, Halifax.

WANTED, motor cycle, 1907, 3 h.p., or over, guaranteed, and trial allowed.—68, Chesnut Road, Tottenham.

MOTOR Cycle, 2¾-3½ h.p., magneto.—Write fullest particulars, T.F.W., 52, Ditton Court Road, Westcliffe, Essex.

WANTED, 3½ h.p. cycle, N.S.U., F.N., or Triumph preferred, magneto, spring forks. — Neale, 245, Middlewood Road, Sheffield.

WANTED, latest Triumph motor cycle and cash, for 8-10 h.p. Cadillac car, model A., four-seater.—The Library, Buntingford, Herts.

TRICARS and Motor Cycles, any make, in part payment for 6 h.p. Rover cars at £130.—Davis and Son, Moseley, Birmingham.

WANTED, good motor cycle or tricar; exchange new 10ft. billiard table, or sell £24.—A. Cooper, 751, Old Kent Road, London.

WANTED, sidecars, any quantity; will give in exchange new £10 10s. gents' pedal cycles, guaranteed twelve months.—Below.

WANTED, good modern motor cycles; cash waiting if quality and prices are right.—Farrar, Square Road, Halifax.

TRICAR, wheel steering, at least two speeds, condition no object; must be cheap. — Particulars to 18, Cowan Street, Kirkcaldy.

FIRST-CLASS Sidecar wanted, in exchange for photographic apparatus and lady's cycle. — Summerfield, Selworthy, Newport, Mon.

WANTED, your old motor cycle, in part payment for either a new 1908 model of any make, or a second-hand mount.—Lilly Lane, Halifax.

WANTED, 100 motor cycles, second-hand, in part payment for 1908 new models by leading makers. — Wauchope's, 9, Shoe Lane, London.

LIGHT Forecar, brakes, side stays, suitable 22in. frame, condition immaterial.—Price, particulars, J. W. Johnson, 20, Southwark Park Road, Bermondsey, S.E.

WANTED, new or nearly so, 2½ h.p. Minerva or Jap engine, inclined, to clamp to under side of front tube, complete with carburetter and silencer. —Lowest price for cash to No. 9,191, *The Motor Cycle* Offices, Coventry.

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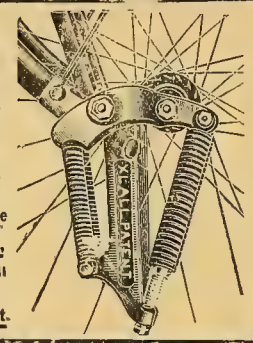
Spring Forks



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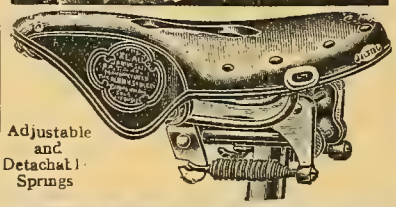

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ARE REALLY **Luxurious**

for they are constructed on scientific lines, springs are also regulated to suit each rider. The saddle peak sinks as much as the back, so it never alters its tilt. Many riders testify that they are

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For LIGHT MOTORS 17/6, HEAVY 25/-

Send for lists.

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25, Martineau Street, Birmingham.

THE GRIP MOTOR CYCLE HANDLE.

Black Buffalo Horn Handle, 2/6 per pair free, with solution for fixing. Give size of handle-bar.

HILL BROS., 32, Broom Close, Sheffield.

WANTED.

WANTED, small power motor cycle; exchange 10 bore breech loader, splendid gun; approval, deposit. — Hollands, High Street, West Tarring, Worthing.

WANTED, good 3½ h.p. silencer, cheap, describe make, fitting, or exchange pair plated spring forks for good back brake and silencer.—Paul, Glarryford, Belfast.

GOOD Twin or Four-cylinder Motor Bicycle, magneto, wanted, in exchange for 3½ h.p. Sunbeam, Mabley, two-seated car, running order. — Muller, Hutton, Guisborough, Yorks.

WANTED, Eagle tricar frame, wheels, etc, or any other tricar, open frame, without engine, suitable for runabout.—Particulars, Clifford, 51, Weaste Road, Weaste, Manchester.

WANTED.

SIDECAR, low, good condition, fit Rex de Luxe.—56, Riverview Grove, Chiswick.

WANTED, a Mabon free engine clutch for 3½ h.p. Minerva.—Schreiber, Lymington.

FORECARRIAGE, with long stays, good condition and make.—Notley, High Street, Pinner.

WANTED, Coach-built Sidecar; cheap, for 3½ h.p. Brown.—Racecourse Garage, Doncaster.

WANTED, Motor Tricycle, twin-cylindered engine, inch belt.—J.M., 111, Larkhall Lane, S.W.

WANTED, Motor Cycle, exchange four cycles; evenings.—134, Highgate Road, Kentish Town.

WANTED, Clement-Garrard, 2¾ h.p.; cheap for cash.—Tomlinson, St Helen's Road, Swansea.

WANTED, Bosch magneto for single-cylinder motor. — Tench, Upper King Street, Norwich.

WANTED, Clutch, Humber, Chater-Lea, or similar.—Young, Gas Works, Bishop Auckland.

JAP Engine, new, 2½ h.p., exchange roadster, brand new.—25, Southampton Street, Pentonville.

WANTED, spray carburetter for 2 h.p. engine; approval.—Davis, Fern Cottage, Balderton, Newark.

WANTED, 1906 or 1907 Triumph or F.N. motor cycles; cheap for cash.—Rey, 5, Heath Street, Hampstead.

WANTED, good Motor Cycle, about 3 h.p., magneto.—Write (no dealers entertained), J. F., 44, Pembroke Street, N.

WANTED, chain drive clutch, also Chater back hub and parts to complete a bike.—99, Benthal Road, Stoke Newington.

WANTED, about 3½ h.p. Motor Cycle, cheap cash, or part exchange Centaur road racer cycle.—71, Burghley Road, Hornsey.

WANTED, Motor Cycle, exchange winning collie dog, head 12in., 27in. shoulder, winner.—Allen Williams, Pave Lane, Newport, Salop.

WANTED, 1908 Magneto Triumph, exchange patent rights, gas stove, Kitchener combination.—Hart, 8, Shaftesbury Street, Walworth.

VINDEC Stand, 2¼ by 26 cover, free engine clutch, spring pillar; stamp.—Bramston, c/o Macgillwig, 29, Libson Street, Hillhead, Glasgow.

WANTED, your old mounts in payment for new machines, any makes; catalogues on application.—Rey, 5, Heath Street, Hampstead.

WANTED, good 7 or 8 h.p. Twin Engine, Peugeot or Jap preferred, in exchange for 5 h.p. twin Kerry and cash —Swanston, Woodside, Sacriston.

1907, magneto model, single or twin, must be low, good make and cheap; Lancashire district.—Box 9,186, *The Motor Cycle* Offices, Coventry.

WANTED, Lady's Pedal Bike, offer lady or gent's gold watch; motor horn, B100 saddle, ⅞in. belt, offer watch or jewellery.—Counsell, Jeweller, Faringdon.

WANTED, approval, B100, stand, oil pump, spring forks, Bowden exhaust lift, Longuemare or F.N. carburetter.—Pett, 5, Bonheur Road, Bedford Park.

3½ h.p. Motor Cycle, well-known make, long wheelbase, low build, 2½ tyres, condition as new; cheap; must bear expert examination.—Apply, 2, Charleville Road, West Kensington, W.

MOTOSACOCHE, or F.N. Lightweight, in exchange for 1907 twin Rex, perfect condition, Watawata non-skid, two accumulators, etc., magneto preferred.—J., 28, Station Road, Redhill.

WANTED, Rover, De Dion, or good make small car, preferably with hood and screen; 4½ h.p. Riley tricar, coach-built seats, in part exchange.—Delaney, 101, Sutherland Avenue, W.

THE MOTOR CYCLE

Vol. 6. No. 257. Feb. 26, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

Motor Cycle Taxation.

ON the 18th inst., as most of our readers already know, the Chancellor of the Exchequer (Mr. Asquith) received two deputations—one composed of representatives of the Royal Automobile Club and the Auto Cycle Union and the other of the Motor Union. Mr. Robert Todd represented the interests of motor cyclists on behalf of the R.A.C. and A.C.U., and the Rev. F. W. Hassard-Short did a like service for the Motor Union. Much as we regret the dissension between the R.A.C. and the M.U., no one can deny that "it is an ill wind that blows nobody good." Motor cyclists have probably to thank the present rivalry which exists between the R.A.C. and M.U. for an adequate representation of their interests. We have had occasion to point out previously that the motor cyclists' case was not properly put before the Royal Commission either by the Motor Union (which engineered the motorists' case before the commissioners) or any other body, and we therefore welcome the indication that the two bodies are proving themselves anxious to show what they can do on behalf of the motor cycling community. We hope this dual representation will not lead to the fate which overtook the individual who tried to seat himself on two stools and only succeeded in falling between them. Such a contingency is possible, but, we trust, remote. In the interests of all motorists it is to be hoped that the two leading bodies will shortly settle their differences, so that further deputations to any Minister of the Government can be made jointly. Dual representation must cause a certain amount of suspicion in the minds of the authorities, particularly if different policies are advocated.

We understand that the R.A.C. waited on the Chancellor of the Exchequer by invitation, and its deliberations were absolutely private. From the discussion that took place between Mr. Asquith and the M.U. representatives, however, it would appear that the R.A.C. advocated a system of taxation based on engine dimensions It is natural to conclude that the A.C.U. representative, Mr. Robert Todd, who represented motor cyclists, adopted the same policy. On the supposition that such was the case, a comparison between the methods advocated by the two bodies will be interesting

The Motor Union advocate asked that motor cycles should be treated as separate and distinct from cars, and pointed out that the present taxation was altogether out of proportion. The arguments he advanced were that motor cycles did comparatively no damage to the roads, raised comparatively no dust, and the initial cost of the machines was very low. As compared to cars, the tax on motor cycles averaged approximately from three to five times as much per cent. on the initial cost.

Provided that moneys derived are appropriated for highway purposes, the Motor Union in its memorandum which was handed to the Chancellor said it would acquiesce in a scale of taxation for motor cycles as follows: Motor bicycles weighing less than 2 cwt., 7s. 6d.; motor cycles weighing less than 7 cwt., 15s.; and motor cycles and motor cars not exceeding 12 cwt., 30s.

Now, presuming the R.A.C. rating is to be used for defining the horse-power of a motor cycle, we find that an engine of 76 mm. by 76 mm. works out at just over 3½ h.p., and a twin-cylinder of equal dimension at 7¼ h.p., whereas in motor cycle parlance a

76 mm. by 76 mm. engine is never reckoned, and does not give, more than 2¾ h.p., and a twin of the same dimensions 5 h.p. Therefore a 5 h.p. twin motor bicycle on R.A.C. rating would be classified with a car of 7 h.p. and weighing anything up to 10 cwt. or more, while the motor bicycle actually weighs well under 2 cwt. For this reason we are entirely opposed to motor cycles being classified on R.A.C. rating for the purpose of taxation, and we favour the classification by weight as more reasonable. The M.U. suggests a slightly higher taxation for motor cycles of 7 cwt., by which we presume is meant the heaviest types of tricars, and in this it doubtless suggests what is fair. For motor bicycles under 2 cwt. a much lower tax, viz., 7s. 6d., or one half the present figure, is advocated, while practically all other motor cycles would come within the weight limit of 7 cwt., and be taxed no more than they are at present, viz., 15s.

We do not hold out much hope of a reduction in the present tax, although lightweight motor bicycles are really no more destructive to the road surface than a tandem pedal bicycle with its two riders, which escapes scot free. What must be fought against is an increase in the taxation of motor cycles, and, if possible, the rendering of the present tax more equitable. The Budget, it is expected, will be out in May, and there is therefore very little time indeed in which to state the motor cyclists' case.

Motor cyclists who have any influence with members of Parliament should do all they can to show them that the tax as at present fixed is in the majority of cases out of proportion to the average cost of the machine and the wear and tear it puts upon the highways. Also to explain that motor cyclists are most careful drivers partly because if any collision occurs they and their machines are more likely to suffer than anyone else. We have reason to believe the R.A.C. and A.C.U. have done this already, and we hope will continue so to do until justice is obtained.

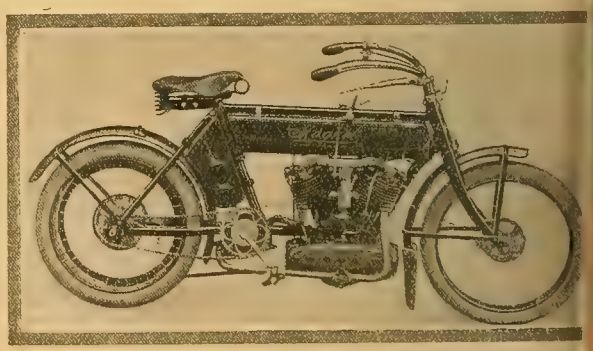
In conclusion, we should say that experts on taxation consider it the height of folly to have suggested to the Chancellor of the Exchequer that he should devote motor taxes to road maintenance. His duty is to raise money by taxation, not to direct the expenditure of the funds he raises, and therefore the Motor Union would have been much wiser to have directed the whole of its arguments towards getting taxation reduced.

Magnet Motor Cycles.

ALTHOUGH Magnet motor cycles are among the most successful mechanically propelled bicycles in Germany, little has been heard of them on this side of the water. These machines possess some very interesting features, and we illustrate two of the many models which most conform to British ideas. The first machine illustrated is of 3½ h.p., the cylinder dimensions being 84 mm. by 82 mm., and a low-tension magneto is used. A two-speed gear and free engine is fitted on the countershaft of patented design, with a combined belt and chain drive. There are no pedals, foot plates being provided in their stead. A rigid pattern sidecar is shown attached to the bicycle, and a special form of supplementary handle-bar to enable the driver to sit in the passenger's seat and control the machine when he so desires. The second model is a twin-cylinder 5 h.p. mount, cylinder dimensions 70 mm. by 82 mm.

A 3½ h.p. two-speed Magnet Bicycle, fitted with rigid sidecar attachment.

The inlet valves are mechanically operated on the machine by means of overhead tappet rods. Another interesting point is that two magnetos are fitted—one in front and one at the rear of the crank case. The standard tyres are 24in. by 2½in., and the total weight of the machine is given as 170 lbs. Other models are a 2 h.p. lightweight machine and a trade tricar.



The 5 h.p. twin-cylinder machine referred to.

Further particulars can be obtained from the representative in the United Kingdom, H. D. Marin, 18, Red Lion Passage, Holborn, W.C.

The bore and stroke of the Bradbury tricar published in the Buyers' Guide of February 12th should be 89 × 89 mm., not 82 × 82 mm. as printed.

We are in receipt of Messrs. Nilmelior, Ltd.'s latest catalogue. The firm of Nilmelior, Ltd., 7 Alfred Place, Tottenham Court Road, W.C., are the selling agents of the well-known Bassée-Michel ignition specialities. The catalogue in question is of great interest to motor cyclists, since motor cycle coils, contact breakers, switches, and magnetos are illustrated and described.

9,000 Miles against Time.

On January 8th we published a leading article on Motor Cycles for Industrial Purposes. A contributor who read that article has sent us a short account of his experiences with an industrial motor cycle, which we hope will be of interest to our readers.

TO many readers, driving a tricar is perhaps an every-day occurrence, which occasions no more comment in the ordinary way than taking a tram ride. The vivid description of a motor ride in these days, given to friends at the club in the evening, fails to arouse the interest of those thrilling hair's breadth escapes of six or seven years ago, when anything in the motor line seemed as uncertain as our own climate. Perhaps I may be excused for relating here an account of a nightly trip I made of thirty-one miles (approximately) on a tricar. Its purpose is probably not original, but to say the least it is a novel one. A brief description of some of my breakdowns and hurried repairs—the former caused by continual hard driving—may be of some interest and perhaps of service to the uninitiated in motor cycle matters.

Riding for pleasure and riding against time night after night for employment are two entirely different forms of entertainment. For instance, the tourist can, as a rule, smoke his cigarette and leisurely make his adjustment. I cannot indulge to this extent; every minute is of the utmost importance, and it naturally behoves me to make a very careful inspection of the machine before starting out; consequently a short time is required for tinkering, adjusting, filling up, etc., every afternoon.

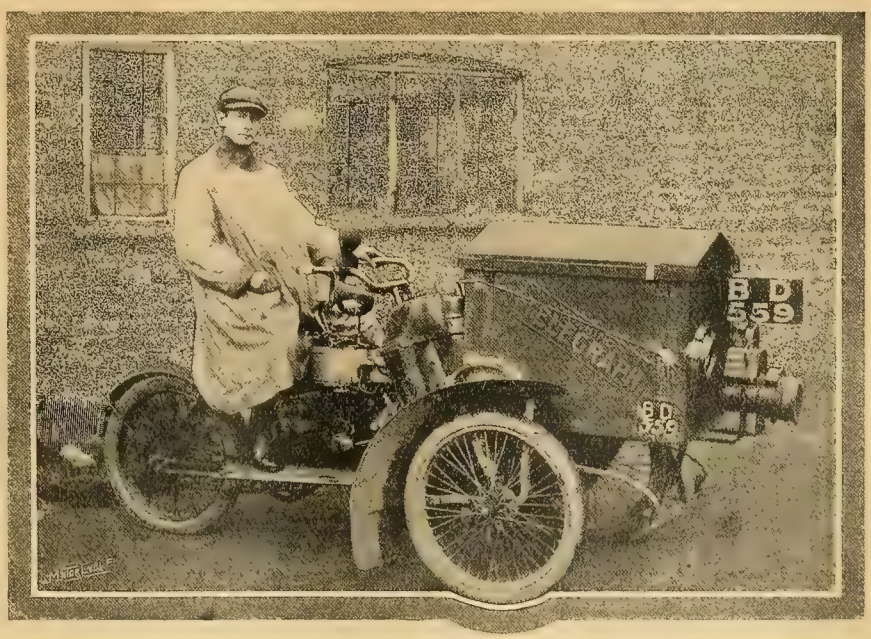
Before going further, the nature of my flying errand may as well be explained. It is the delivery of the local evening "enlightener"—a late edition, which has a circulation in most villages and small towns within a radius of fifteen miles of Kettering. To get them there by train in anything like reasonable time is awkward, owing to many of the places being miles from a railway station. The inconvenient times of trains would not facilitate matters either, for the particular edition required.

Preparing the Load.

We will just imagine for a moment it is 5.20 p.m. I am at the doors of my "garage"—a shed carefully constructed of liberal portions of sugar boxes and corrugated zinc—close to the printing works. A shrill whistle imparts information to the effect that the papers are rapidly going through the rotary printer, and will be tied up ready to drop into the box on the front of the tricar in five or six minutes' time. I get to the door of the works, when fourteen parcels of varying size are hurriedly dropped into the box in convenient order, and in less than two minutes I am off.

The road out of Kettering, like all roads in the vicinity of towns, is terribly bumpy—can't go very fast for the first mile at any rate; I must make up time later on down hills. After negotiating a stiff climb, about 1 in 8, and a mile of decent running, I arrive at Burton Latimer, about three miles, in seven or eight minutes. "Up to time to-night," says the recipient of the parcel, as he snatches it out almost before the tricar is stationary. "Yes," I bawl back to him, at the same time letting in the clutch.

My next halt is Finedon. Out of Burton Latimer



The author ready to start on his nightly journey. Note the car headlight.

9,000 Miles against Time.—

there is a moderately stiff climb, which the little tricar manages as a rule without changing gear. After then the road is fairly good until nearing Finedon. As I jam on both brakes on a slight down grade outside H——'s boot factory, I am met by a few gentlemen with sporting proclivities, who, after a scramble for a copy, evince deep interest in the result of the five o'clock race.

Irthlingborough is not more than a couple of miles distant. With luck I am there in a very few minutes after leaving Finedon. Here a lad is stationed at a certain spot, as indeed there is at every calling place along the route, who lightens my load by one parcel. Here my hurry receives a check in the nature of an extremely narrow street and a fair amount of traffic for the next mile, at the end of which I cross the river Nene, and I am at Higham Ferrers L. and N.W. Railway Station. Three small packages handed in here. One more mile carries me into Higham itself—a quaint mixture of an old-fashioned town and an over-grown factory village, boasting of a mayor and corporation. A glance at the church clock shows I am inside schedule time by three minutes, and relieved of one more bundle.

Dodging the Traffic.

The bootmaking town of Rushden practically joins Higham, and it is at the aforementioned place my 5 h.p. Humber tricar is going to be relieved of a considerable portion of its burden. For the next few minutes I am busy dodging swarms of cyclists, boot operatives turning out of the factories, railway lorries, various forms of farmyard *habitués*, and dairy-producing quadrupeds.

At Rushden I turn and retrace my tracks through Higham, where I leave the main road, making my way to Stanwick. A portion of this road beggars description. For a distance it is traversed daily by huge waggons carrying stone from the quarries close by. Over this it is impossible to travel at more than ten miles per hour. A small consignment is thrown overboard at Stanwick. After performing evolutions, which would do credit to a figure skater, round its sharp corners and narrow curly streets, I am running towards Raunds, noted for its manufacture of army boots. "Jigger's running well to-night," I am thinking, when suddenly a nasty metallic snap and g-r-r-r-r. The engine is suddenly doing 2,000 a minute. I know only too well what has happened—driving chain gone. I pull to the side; out goes my remaining freight, and a hurried search for that spare chain. I say "search," for there are a hundred and one things in the way of spares at the bottom of that box. I find it and attempt to fit it. Half a link short; more adjusting necessary. In about ten minutes I am away again, and making up for lost time.

As I pull up at Raunds I am greeted with a round of applause from a contingent of juveniles, whose nightly recreation seems to consist of awaiting my arrival for the purpose of making unkind remarks relating to my punctuality, or want of it. To-night the cheery reception is not genuine, but sarcasm, because I am behind time. There seems to be renewed anxiety regarding the winner of the five o'clock at this spot, judging by the apparent impatience of those waiting to secure a paper.

A Treacherous Descent.

I stay but half a minute, and then make for the little village of Ringstead. This is one of the best bits of road I traverse, practically straight and uninterrupted. I rattle off two miles at, well, perhaps exceeding that speed legally prescribed. Down into Ringstead, I waste no time—a treacherous descent into the village, a very narrow road, and a right-angle turn at the bottom, the alternative being a row of cottages with iron railings as a substitute for a buffer in case of failing brakes. I may say the hill is quite straight to the bottom, and resembles a deep, narrow, railway cutting; there are no houses on either side or roads leading into it—two important points which help to excuse me for shooting it at my best speed. Here again I am received by a little crowd composed of the junior portion of the community; there is a bit of a scramble as to who shall be the temporary possessor of the small consignment.

I am now nearing the end of my mad rush. Up out of Ringstead is a good steep grade, which "the old 'bus," being practically empty, rattles up in good style. In something like a mile I am coasting down a short, steep hill, round a hairpin turn, nicely banked in the wrong direction, fairly inviting anything on three or four wheels to topple over, and I am in the pretty little village of Denford, which nestles amid a bountiful supply of foliage on the banks of the Nene. Rid of one more package, the road to Thrapston runs along the valley beside a backwater, which encroaches on the road in one place to such an extent as to render it almost impassable in flood time. I make a point of hugging the business side of the road on foggy nights; my old machine is very good in many ways, but swimming is not one of its strong points.

Another mile, we arrive at Thrapston—a small old-fashioned market town. A glance at the clock, I see I am ten minutes behind time—just the time taken to fit that spare chain—more abuse from the agent's paper boys. My feelings are not hurt, however; fortunately, I cannot hear all they say. Scarcely a moment has elapsed when the streets reverberate and echo the sweet-sounding strains of *Evening Telegraph*. I turn into the Swan Hotel yard, for the hurrying part of my ride is now over, and I am not long in making my way to the smoking room, where I can recline at mine ease for a brief interval.

The Return Journey.

My journey home—nine miles—is, as a rule, uneventful. At Woodford I throw overboard a small cargo, and the business portion of my outing concludes, after which I enjoy a steady run home of seven miles.

The foregoing gives a little idea of how I spent my evenings—hail, rain, or snow—from Easter to the late autumn of 1906. Probably the reader has been drawing on his imagination and picturing me careering along on a fine summer's evening, when the ride is more or less enjoyable. Let him again draw on his imagination, and see me starting out on a cold foggy night in November, when my headlight will fail to penetrate more than a dozen yards ahead, and I am fearfully apprehensive as to the number of carts going in my direction—without rear lights, of course—or cattle being driven along the road in darkness; the anxiety and care I display on a dark night in dodging

9,000 Miles against Time.—

shadows and imaginary obstacles, only to escape being knocked into eternity by the genuine thing. It has been a constant source of trouble to me that legislation has not provided a law compelling cattle to carry a front or "tail" light. At the same time, I must say that with continual night riding one cultivates a sublime indifference to possible obstacles, or it may be that one's eyes grow accustomed to the darkness. Luckily, I can boast of only two victims—one a dog, the other a sheep—only slightly wounded in both cases, and no damage to myself or machine.

My mechanical troubles have naturally been numerous, being out in all weathers; broken chains have perhaps wasted more time than anything. I cannot remember how often it has occurred or how many new ones I have had. One thing is certain—the average tricar driving chain is totally inadequate for the work it has to do. The parts which have given me the least trouble are the clutch and two-speed gear; both, after 9,000 miles, show not the slightest sign of wear. I need hardly mention I have worn out several rear covers. The mudguards originally on the machine soon rattled themselves to pieces; at one time they were mended with copper wire every few miles until I had stronger ones fitted by a local blacksmith. I found the spring saddle pillar absolutely indispensable. Two accumulators wired to a two-way switch often kept me out of trouble. As to lamps, I have long since ceased to juggle and conjure with so-called motor cycle lamps. I use a Salsbury Flaro; admitted it looks ridiculously out of proportion, but it answers its purpose—it gives a light by which I am able to discern objects 100 yards ahead.

It is my impression the usual methods adopted for carrying the coil and accumulators are anything but satisfactory. They are often in burglar-proof cases, and for general inconvenience and inaccessibility are genuine feats of human ingenuity. I may say I never use a non-skid cover; side-slip is not one of my terrors. The machine often slides yards off the straight, but on being well acquainted with its achievements I have quite a contempt for its fruitless gyrations. No doubt such performances in London traffic would have serious results, but on country roads it is different.

Stoppages and the Causes.

Inlet valves were at one time a continual trouble until I had some made locally, much thicker in the stem, admitting a stout, flat key.

Only twice have I failed to complete the journey. Once a broken piston brought about my retirement; another occasion a broken exhaust valve (I had unintentionally mislaid the spare one before starting out).

Involuntary stops have been numerous. One I can call to mind which was puzzling for a few minutes was caused by the round disc, or what is known as the butterfly throttle, dropping down the induction pipe and lodging snugly over the spray nipple of the carburetter.

On another occasion I am afraid I was the victim of some individual humorously inclined. There was a wedding party at which I was to attend; 8 p.m. was the appointed time for the evening's festivities to commence. A good part of the afternoon was spent in tuning up and making careful examinations with a view of minimising any chance of delay on the road. At 5.25 I attempted to start up, but all my kindly words and persuasive methods failed to induce that engine to fire even once. I kept tugging at the handle, varying the exercise by examining something or other. Everything seemed in perfect order, and yet it refused. I had been injecting petrol into the inlet, which was customary; some got on my hand; I looked at it, I smelt of it, and was not long in deciding that I had been expending my vital energy in a vain attempt to start up on water. A description of my conversation to the motor is unfit for publication. The reader may guess my feelings. The water was everywhere it shouldn't be—in the tank, in the carburetter, in the engine (in fact, it was a full half-hour before the poor thing could be jerked into active service). Oh, if I could only find the man who filled my petrol can with a gallon of water!

Once on the road, fortunately, all went well.

Much of my trouble no doubt has been accentuated by the terrible roads (in places) and always driving at

The Basingstoke and District M.C. private club room.

practically top speed. I must confess the tricar has been as much a trouble to keep in order as three motor bicycles, due, of course, to the unfair usage it received. In justice to it, however, it should be mentioned it was not specially built for the work, and was not quite new when I signed on for the arduous task it was called upon to perform.

The fuel—that is, petrol—lubricating oil, and carbide cost on an average 6s. 6d. to 7s. per week. New tyres helped to swell the expenses sheet. Two new rear covers have been fitted besides the one already on when purchased. Two have been retreaded, and two new front covers have been found necessary.

A Business Success.

Taking all things into consideration from a business standpoint, it is no exaggeration to claim the venture a huge success. In the daylight I have arrived at Thrapston with but few exceptions within the hour, including ten calls. In the dark I have averaged eighty minutes for the same distance.

As a healthy recreation and an appetiser I have found nothing better, and it is with deep regret I look back upon my nightly excursions, which are now abandoned.

H. A. P.

OCCASIONAL COMMENTS

By "IXION."

A Case of Overheating.

I have heard this week of what I consider to be the most interesting case of "overheating" I have ever laid before my readers, and I am asking the editor to print the symptoms and cure as they were related to me.

Symptoms.—Engine running tremendously hot; valves pitting; exhaust valve spring swiftly losing temper; valve box glowing red by night. Throttle and air lever acted as switches, or very nearly so, *i.e.*, when engine was running at any speed, slow or fast, to alter setting of throttle or air lever usually stopped the engine firing altogether.

Cure.—Raising level of petrol in jet.

Explanation.—Ninety-nine riders out of a hundred would say after valve lift, cleanliness of silencer, accuracy of lubrication, etc., had been tested, "This is a case of too rich a mixture." They would set about reducing the size of jet, lowering petrol level in the jet, and so on. It *is* a case of too rich a mixture, but it is due to an exceptionally low level in the jet, and this is how it is explained. When the engine was pedalled the suction at first was insufficient to raise any petrol from the jet; on the suction increasing, it first of all draws the petrol level *to* the top of the jet, and finally keeps it there, and sets the engine running properly. The driver then begins to open the extra air, but, owing to the exceptionally low level, the slightest derangement upsets the suction, and the petrol sinks down towards the foot of the jet, and the engine stops firing until the air is shut off and the suction in the jet chamber is increased again. Finding the engine stops as soon as the extra air is opened, the unlucky rider naturally goes on with his extra air closed, under which conditions the engine is receiving too rich a mixture. The rider cannot supply a correct mixture of air and petrol, and goes on running till his valves pit and his engine gets red hot. To consider the cure, the level of petrol in the jet was first of all raised until the spirit stood flush with the top of the jet without brimming over. The result of this was as follows:

(1) The engine promptly became much easier to start.

(2) On the air lever being opened the increased supply of air did not cause the level of the liquid to sink as far as before. Consequently the engine both kept on firing and ran cool, instead of stopping till the air was cut off, and then running hot.

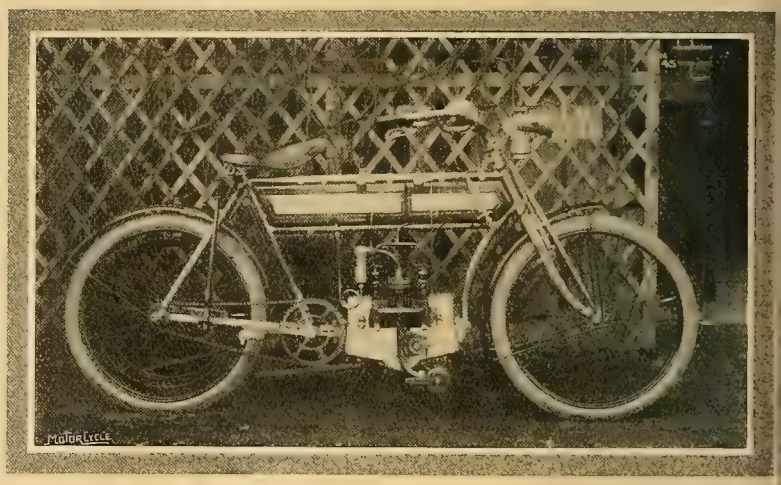
(3) The other adjustments of the carburetter were now capable of being verified, and it was found that the jet was too large, since the engine would take full extra air before the throttle was fully open. Accordingly, the size of the jet was reduced and the petrol level set about 1/8in. from the top of the jet, and it was found full extra air could not be given till the engine was running at its fastest.

(4) When the reduction of the jet area had been added to the correct level of petrol in the jet the engine gave thoroughly satisfactory results for the first time in its history.

Those whom the Above may Help.

The above experience should be read, learnt, and inwardly digested by all motor cyclists suffering from—

(1) Overheating.
(2) Difficulty of starting.
(3) Incapacity to use all their extra air.
(4) Quickly pitting valves.



The complete motor-bicycle the engine of which is described on page 161. It has one cylinder and two pistons, and the explosions take place between the pistons.

(5) Knocking at slow speeds.
(6) Valve springs swiftly losing their temper.
(7) Switchlike effects of altering the setting of car buretter levers.

And let me add that in testing the level of petro in the jet it is useless to make the test with the car buretter taken off the machine and levelled on bench. The carburetter should be tested whe levelled at the same angle as it occupies on th machine. This further shows the desirability o having the carburetter placed athwart the machine so that the grade of the road does not interfere with this very vital point of the setting of the petrol level If the carburetter is fitted with a single jet it is difficul to correctly ascertain the height of the liquid. The bes plan is to secure a spare jet and bore the top righ through, leaving the jet the same height; the leve can thenbe seen quite easily. When a Longuemare i fitted there is no necessity to obtain a spare jet.

HUNDREDS OF MOTOR CYCLISTS

have accepted our offer to send particulars of the latest and best light motor cycle, the

MOTO-REVE

"SPEED IN A NUTSHELL."

REMEMBER— in the A.C.U. Trials, in vile weather, the Moto-Reve came through in first-class style. Dashwood and Amersham Hills were climbed in 2m. 32⅘s. and 2m. 50s. respectively, a performance that stamps the machine as thoroughly PRACTICAL.

Have you written yet?

Why delay— A POSTCARD WILL DO.

Ask for List C.

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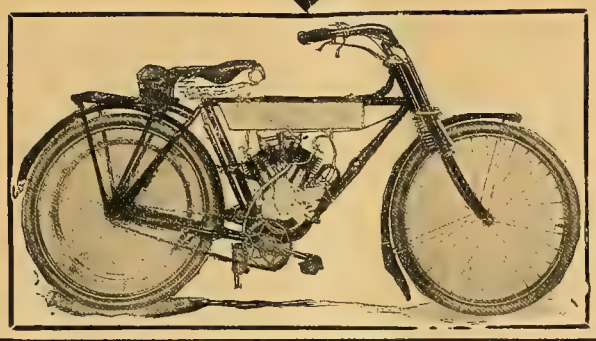

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"Brooks Tyres and Bands - =

defy puncture and skidding."

The "Long-life" Stud gives efficiency—the material and peculiar construction ensure durability.

Please ask for our prices and particulars.

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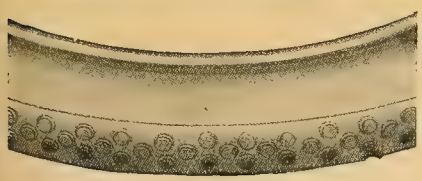

BROOKS

— "Stratex" —

Belt Berisford Patent..

suits all motor cycles. In strength, flexibility, smooth running, GRIP, durability and adaptability, it is universally suitable. No motorist who has tried a "Stratex" cares to return to the old Belt—for many reasons. Write to-day for our Belt Booklet, and read all about it. A "Stratex" is the best to buy. . .

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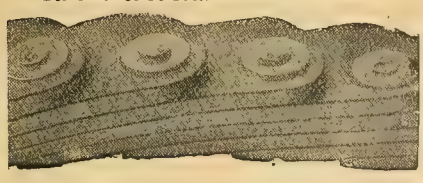


A word about the ROC TWIN . . .

The design which has made the single cyl. 4 h.p. Military Roc world-famous, applies the same to the Roc Twin.

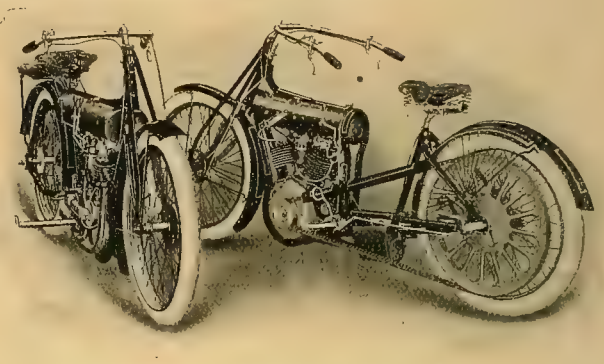
The Roc Twin engine is 5-6 h.p., 76 mm. bore × 76 mm. stroke, A.O.I.V.

The Roc Twin has just the same low comfortable seat—the long wheelbase—the live back axle with hand starting—the pedal-operated Roc patent clutch-speed-gear. It has also the same strong duplex frame—exactly the kind of frame that is wanted for sidecar work.

As evidence of the remarkable strength of the Twin Roc it is interesting to recall the test of a private rider, Mr. C. A. Palmer whose experience was reported in "The Motor Cycle," January 22nd, 1908.

Mr. Palmer's Twin Roc, succeeded in towing a tricar with a weight of 1,028 lbs. up a 1 in 7½ to 1 in 8 gradient.

The fact of the frame and gear standing the pull of the 5 h.p. engine and a load of nearly half a ton is sufficient proof of the quality and strength of the Roc's working parts.



1908 Roc Twin, 5-6 h.p. Military Model, S. Bosch H.T. magneto, Roc clutch-speed-gear, 55 GNS.

A. W. WALL, Ltd., Roc Motor Cycle Works, BIRMINGHAM.
(Corner Dartmouth Street).

ZENITH MOTORS, LTD., now present their solution to . . . . . .

THE VARIABLE GEAR CONTROVERSY.

The "Gradua"—the infinitely variable gear (for belt-driven machines) as described in last week's "Motor Cycle."

NO END THRUST! NO JOCKEY PULLEY!! NO SLACK BELT!!!
SAVES PETROL. SAVES OVERHEATING. SAVES TYRES.
HANDLE STARTING—FREE ENGINE.
. . . DIRECT DRIVE ON ALL SPEEDS. . . .

This gear—which gives infinite variation from zero to 3½ to 1—will in future be standardised for the "Zenette"—the spring-frame Motor Bicycle-de-Luxe—the machine described by "The Motor Cycle" expert on 6th Nov. last, and exhibited for the first time at the last Stanley Show. The price complete will be 50 guineas nett cash.

The "Gradua" is absolutely fool proof.

No sudden jamming in of gear and wear and tear to the machine. A simple turn of a small wheel is all that is necessary.

The rider gets full power of his engine by never overloading, and by keeping up the number of its revolutions. Hills have no terror with a "Gradua" gear!

A perfect free-engine position is assured: the engine can be started with a handle and the rider take his seat while the machine is at rest. "The Motor Cycle" (19th Feb., 1908), describes it as

> "a gear which is infinitely variable between two points. Previously several attempts have been made in this direction, but all have necessitated the employment of a jockey pulley, which puts an unfair strain on the belt, and also absorbs a considerable amount of power, while with them the difference in ratio between the highest and lowest gears has not been sufficiently great. The Zenith gear, however, entirely does away with these objections, since it is always 'direct,' and consequently the same efficiency obtains whether a high or low gear is used, and the gear ratios range from 3½ to 1 to 9 to 1, thus enabling very high speeds to be maintained on the level and on falling grades, or when travelling before a strong wind, and yet allowing the severest gradients to be attacked with impunity."

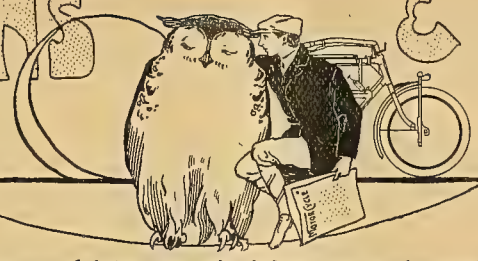
When ordering your new mount, **insist** on its being built with a "Gradua" gear. We are prepared to grant licences to other makers for building this gear under royalty.

To prevent disappointment, we would point out that it cannot be fitted to existing machines. Further orders for "Zenettes" with the "Gradua" gear must be placed **at once** if required for Easter delivery; we can accept a limited number only.

A "Zenette" fitted with a "Gradua" variable gear may be tried (by appointment **only**) at

ZENITH MOTORS, LTD. **Showrooms: 119, Stroud Green Road, LONDON, N.**
(Nearest Station, Finsbury Park).

QUESTIONS & REPLIES



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Inland Revenue License.

If I exchange my present mount for another during the summer, say, will it be necessary to pay another Inland Revenue license, or will one payment suffice for the year?—BATTERY, Westmorland.

Only one license would be necessary. All the license is for is to allow you to keep and use one motor bicycle.

A Beginner's Queries.

As an intending purchaser of a motor cycle I have for some time past been reading *The Motor Cycle*. (1.) As I intend, when I have become used to the machine, to attach a sidecar, what h.p. engine ought I to procure? (2.) Does learning to drive a motor cycle present any great difficulties to anyone who has not been accustomed to machinery of any description?—J.F.D., Clapham.

(1.) Not under 3½ h.p. with two-speed gear. (2.) A person of average intelligence who can ride a bicycle can learn to ride and drive a motor cycle in five minutes. You had better purchase a copy of "Motor Cycles and How to Manage Them." This will be of service to you. We should recommend you not to use a sidecar until you have become thoroughly acquainted with the bicycle.

Best Route to Switzerland.

I wish to go to Zurich, Switzerland, shortly by motor cycle. Can you tell me the best route, and whether *viâ* Dover - Calais or Newhaven and Dieppe? It is a matter of time. What would you think a reasonable time to cross France to Zurich, and would my 3½ h.p. White and Poppe, with 4 to 1 gear, be suitable for the journey, as I wish to ride about in Switzerland?—W.R.W.

The best route of all is from Southampton to Havre, on account of the courtesy of the Custom House officials on the French side. Previous to starting it would be as well to join a club, such as the Auto Cycle Union, as the touring facilities it offers are well worth considering. It would take about four days to reach Zurich. Your machine, geared 4 to 1, should take you almost anywhere. It would not be a bad plan, however, to fit it with an adjustable pulley, so that you can lower the gear when you go into very hilly districts.

Magneto Ignition.

Is there any means of testing the intensity of current produced at the points of make and break of a Simms-Bosch magneto? The sparks occur regularly, but appear to be weak.—G.B., Cornwall.

Are you referring to a high or low tension magneto, and do you refer to the intensity of the current at the sparking plug points at the moment the points of the contact breaker separate? If this is what you require we are afraid that it is almost impossible to find out. It is, of course, capable of being tested by a delicate laboratory instrument, but the magneto manufacturers are not able to give us the figures, which we have tried to obtain on previous occasions.

Increasing Power on Hills.

I have a 2¾ h.p. Excelsior motor bicycle fitted with surface carburetter and M.M.C. engine. The weight, unladen, is 150 lbs., and the gear 4½ to 1. I have a difficulty in mounting hills. Can you give me a reason? I am only a beginner. Everything seems in good working order. Also I should like to ask if the spring of the inlet valve were to break, would there be danger by the explosion firing back into carburetter?—CO 14.

Since the time that this type of motor bicycle was made, the specific gravity of petrol has been considerably altered, so that a surface carburetter does not work quite as well now as it did five years ago. Try the density of petrol, and buy only the best, even if you pay more for it. In frosty weather considerable difficulty may be experienced. To increase the power on hills you should carefully overhaul the engine. First scrape away all carbon deposit on piston and cylinder head, examine the piston rings, and fit new ones if the old ones are worn, make sure that the clearance between the valve stem and tappet is only 1-32in., and note if exhaust cam is worn. It should lift valve ¼in. Adjust the inlet valve spring and grind both valves until the compression will bear your weight on the pedal a quarter of a minute. If you have trouble in starting it would be better to fit a spray carburetter. No, it is extremely unlikely that there will be an explosion in the surface carburetter if the spring of the inlet valve breaks, as gauzes are fitted to prevent this.

Position of Coil and Compression Space.

(1.) Kindly tell me if it would do any harm to a trembler coil to have it clipped on to the top bar of a machine, or must it be standing upright? (2.) I find I have too much compression space, and do not want to cut the cylinder down. Would a plate screwed on the top of the piston about 3-16in. act as well? as I have made a 2¼ h.p. De Dion into a 2¾ h.p., but find the stroke is a little too short, so am trying to make it up as above.—TREVOR.

(1.) No, there is no harm in having a trembler coil clipped on to the top tube in a horizontal position, provided it is well protected from wet. (2.) It is better practice to lengthen the connecting rod or reduce the cylinder at top or bottom. There should be no difficulty in this, as combustion head is a separate casting. If carefully done a steel plate screwed on to the top of the piston should have the required effect, but it will probably cause some extra vibration, as adding weight upsets the balance.

Commencing Motor Cycling with a Second-hand Machine.

Can you kindly furnish me with the following facts: (1.) Horse-power of suitable second-hand motor bicycle which will take ordinary hills and capable of 30-40 m.p.h. on level (rider ten stones)? (2.) Cost of upkeep for summer holiday (*i.e.*, two months), including necessary taxes, licenses, garaging (one month), riding about 40-60 miles per diem? (3.) Could such a machine be obtained for £15 in good order and of fairly recent type? If not, what can be got for £15 to answer, as near as possible, above requirements?—J.F.M., Birkenhead.

(1.) You would require a machine of not less than 3 h.p. (2.) The upkeep would be about 2s. 6d. per 100 miles. Licenses: Inland Revenue license 15s., driving license 5s., registration 5s. The cost of storing machines varies, say 1s. to 1s. 6d. a week. If you are touring the majority of hotel keepers make no charge for stabling a motor bicycle. (3.) If you want a really good second-hand machine with magneto ignition you would have to pay from £25 to £30 for it. For about £15 you would buy a very fair machine about three years old, with battery ignition.

Stoppage in Petrol Feed.

My mount is a standard 1907 2¾ h.p. Minerva, accumulator ignition, Minerva-Longuemare carburetter, and until lately has run splendidly, having done many a long journey. I can get 120 miles per gallon in summer. Weight 10½ stones. With half throttle could open extra air almost fully. Now, without having touched any part, the engine will not take extra air, and I have to stop up three or four air holes to get steady running, but engine will not pull. Shall be much obliged if you can suggest cause and remedy. Am I right in thinking more petrol is consumed in winter than in summer with equal roads?—S 863.

The trouble seems to be due to a partial obstruction in the carburetter which prevents sufficient petrol from getting through. We advise you to dismantle the carburetter, remove the spray, and clean out all the slots in it. The gauze in union under float chamber usually collects dirt. Also clean out the pipe, from tank to carburetter. In summer more air can be given than in colder weather, owing to the spirit vaporising more readily so that consumption of petrol would be slightly higher in winter.

Round Belt Slipping.

I have a 1¼ h.p. Motosacoche on which the drive is by a narrow round twisted leather belt. I would like to know whether it is practicable to change the jockey pulley now fitted for a flanged flat-faced one, for use with a ⅝in. ordinary V-belt? as I have experienced great trouble from belt slip in wet weather; also. I believe a rubber and canvas belt (e.g., Shamrock-Gloria) does not require to be driven so tight, thereby lessening friction at the jockey pulley. I may say the machine has completely satisfied my not very exacting requirements, as in 1,500 miles I have had to get only a new plug washer and a nut for the silencer.—M. BRUCE.

If you use an ordinary V-belt the jockey pulley would have to be of the shape you mention. What you really want is a very flexible belt, but the difficulty with all metal sewn leather V-belts, and those made up with rivets and washers, is that they would probably break up when subjected to the strain of running over a jockey pulley as well as the engine pulley; there would also be some trouble with the fastener. For a lightweight machine designed like the Motosacoche there is nothing better at present than the round twisted leather belt and jockey pulley. Rubber and canvas belts are not at present made for so small an engine.

Petrol dripping from Carburetter.

When I turn on the petrol tap of my machine there is a continual dripping from the carburetter—not the float chamber end, the other. The float is all right. The needle valve must be wrong somewhere, but I cannot find out where it is.—LB 816.

The needle valve probably wants grinding in with a little crocus powder. If this does not cure the trouble, it is a sure indication that the needle is not bedding properly on its seating. If this is the case particular attention should be paid to it. After grinding in the needle, note the height of the petrol in the jet. If it rises higher than ⅛in. from the top, it is too high, and the weight on the needle should be raised a fraction.

Air Supply Insufficient.

I cannot make the engine of my Roc misfire when the extra air supply and the throttle are fully open. I was under the impression that too much air ought to be able to be admitted, thus allowing the weakest possible mixture to be used if required. Therefore I presume the mixture is too strong, even with the extra air supply fully open. How can I remedy this? Would a larger funnel do it? (Longuemare carburetter.)—Dr. C.B.

If the engine starts easily we should not advise you to alter the combination of choke tube and spray in your Longuemare carburetter, but it is quite correct that the engine should misfire with the extra air lever fully open. To enable you to admit more air to the engine you could have a small hole drilled in the induction pipe, and a cycle lubricator or spring clip put over it, so that you could open the hole when riding along. Another plan would be to increase the depth or width of the slot of the extra air inlet. You will seldom, if ever, require full throttle at high engine speeds, therefore, unless mixture is too rich, we do not recommend you to alter it. For instance, if you can make engine miss by opening extra air fully when throttle is two-thirds open, it would be advisable to leave well alone, unless you want to use machine for competitions.

Constant Pitting of Contact Points.

For some time I have experienced trouble and inconvenience by the platinum points of contact screw on my 2¾ h.p. 1904 Vindec Special becoming badly pitted and scratched after every twenty or forty miles. This has necessitated almost daily attention in order to avoid misfiring, and in a very short time some new platinum contacts disappeared through the frequent hammering (the file was used on only one or two occasions). I had spring and screw fitted with iridium, but I find these have become pitted and scratched just in the same way. Thinking that the condenser of my coil might be inefficient, I tried another coil a few days ago, but I found no improvement. The iridium points were pitted and scratched as before. I shall be much obliged if you can suggest a possible cause for the trouble? I may say that I am quite sure the adjustment of contact points has not been too tight. Do you approve of the India Automobile stone as sold by Markt and Co., and would it be suitable for iridium points as well as platinum points?—Dr. A. Suffolk.

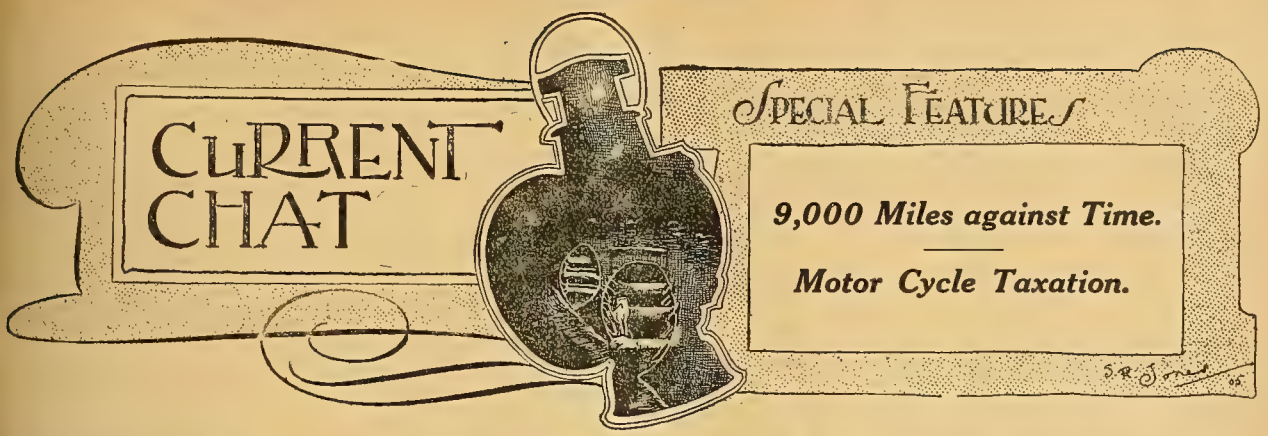
The trouble is doubtless due to the coil. Very few plain coils are economical in current, and so the fact that you have tried another coil, which did not cure the trouble, is no conclusive proof that the coil is not the trouble. What we should advise you to do is to send the coil to the makers, and get them to test it for you and put it in order. Some coils are guaranteed to allow the platinum points to run 1,000 miles without needing adjustment. The stone is an excellent little implement, and quite suitable for trimming platinum and iridium points.

Charging Query and Starting from Cold.

When recharging accumulators every fortnight. is it necessary to put in fresh acid on each occasion, even though accumulator has not been used at all? Otherwise, how often should fresh acid be put in? I have a 3 h.p. Kerry, but although make and break is clean, and makes firm contact, and spark is good, I cannot induce engine to start easily (even after injecting paraffin). Carburetter is F.N. without air lever. Machine is kept in the house, so is not excessively cold. My present mount (2 h.p. Clement-Garrard) will start firing immediately exhaust valve dropped, but with the 2½ h.p. means a long run before engine starts. The points of plug are close together.—L.J.C.

The acidulated water should only be put in when the level of the liquid has fallen below the top of the plates through spilling of the liquid. Water only should be added if the loss is by evaporation. It should be filled up to one quarter of an inch above the level of the plates. Apparently you have no stand on the machine, and are thus unable to warm up the engine before starting for a run. Fit a stand and all the exertion of starting will be overcome. You might also try partially closing up the fixed air supply temporarily by means of a slide as recommended on page 121, issue of Feb. 12th.

"The Autocars of 1908, Illustrated," *will be included in the issues of "The Autocar" dated March 7th and 14th. This interesting feature will consist of the main particulars and two illustrations—one side and one front view—of upwards of 400 motor cars now on the British market. Its object is to give to those interested in automobilism an idea of the general appearance and outline of every car, so that they may be able to recognise the make of the cars they meet on the road. Specifications and illustrations will be given of cars ranging in price from £100 upwards, and the two issues are commended to any motor cyclist who is also thinking of purchasing a car. The price of each issue will be Threepence as usual.*



Belts on Lightweight Machines.

A few weeks ago a correspondent mentioned that he had found a substitute for the round twisted belt used on lightweight machines. Mr. A. F. Girvan, Northdene, 8, Chatsworth Road, West Norwood, S.E., writes: "Would be very glad to have details of it."

Inter-club Meet on April 17th.

Another inter-club meet of motor cycle club members in the North is suggested for Easter. Last year the meeting place was Richmond, Yorkshire, but this year the venue suggested by the Middlesbrough and District M.C.C. is Ripon. Secretaries of clubs interested are asked to communicate with Mr. Geoffrey W. Liddle, hon. sec. of the Middlesbrough club.

Land's End to John-o'-Groat's.

The secretary of the Auto Cycle Union will be pleased to hear from motor cyclists or anyone interested in the End-to-end run who will be willing to assist the competitors by posting up arrows to mark the route, or checking in controls. A great deal of assistance will be required, and it is to be hoped that the necessary help to make this trial a success will be forthcoming.

O'er the Bridge.

It will interest previous and prospective competitors in the London to Edinburgh ride to know that although the bridge commonly called the Border Bridge, at Berwick, forms the link between England and Scotland on the East Coast Road, it is not the boun dary line at that point. Mr. J. M. Oliver writes that the river Tweed forms the boundary for about seventeen miles of its course, but only to a point about three and a half miles above Berwick. There it leaves the river, and extends North and North-east to the coast.

The A.C.U. and M.U. Agreement.

We have received a circular letter, a copy of which has been sent to all motor cycle clubs affiliated jointly to the A.C.U. and M.U. This letter is signed by the Rev. F. W. Hassard Short, Messrs. A. Warnery and Herbert R. Mayo, who are representatives on the Motor Union of three provincial clubs, and it calls attention to the fact that, although the A.C.U. has given notice to the M.U. to terminate its agreement under the terms of the dissolution agreement between the R.A.C. and the M.U., it is not yet certain whether the A.C.U. comes within the scope of this agreement, and should it be decided that it does not, then the severance cannot take place until Dec. 31st, 1908. The letter further points out that if it is decided that the A.C.U. does come within the scope of the dissolution agreement the M.U. will at once consider the whole question of the interests of its motor cycling members, and organise a strong department to look after their special interests. Needless to say, this letter came as no surprise to us, as we were aware that the Motor Union was contemplating a scheme for motor cyclists, and this was what was vaguely referred to in a paragraph published a few weeks ago.

The A.C.U. Explains the Situation.

As may be expected, the A.C.U. does not intend to allow this matter to remain where it is without a protest, and the secretary of the A.C.U. writes: "At the conferences both at Lincoln and Nottingham, representatives of clubs affiliated to the Auto Cycle Union, and other clubs proposing to affiliate, showed a very strong feeling that the A.C.U. should itself do the work which it had hitherto paid the Motor Union to do for it, thus saving its money and having control of its own business. The committee of the Auto Cycle Union then pointed out the difficulty which existed owing to its agreement with the M.U., but stated that the matter would be brought before the council of the A.C.U. for consideration at an early date, when various clubs who were then outside the Union had had an opportunity to affiliate to the A.C.U. and themselves vote on the subject. Before, however, this period was reached, the dissolution between the Royal Automobile Club and the Motor Union gave an opportunity for the Auto Cycle Union to resume the work which it had delegated to the Motor Union, and the A.C.U. is now prepared to carry out all business affecting the interests of motor cyclists. One result of this is that it is expected that the affiliation fee to the Auto Cycle Union can be reduced from 2s. 6d. per head (which was necessary when affiliated to the Motor Union) to 2s. per head. The Auto Cycle Union is now able, under the arrangements which it has made, to give its members every advantage which was gained by affiliation to the Motor Union, and others in addition. I may say, without fear of challenge, that no advantage can be given to motor cyclists by any other body which they cannot obtain by joining the Auto Cycle Union."

Motor Cycle Race on Brooklands Track.

Yesterday (Tuesday) at 12 noon, a motor bicycle race had been arranged to take place on the Brooklands Track between W. G. McMinnies, riding a 1908 3½ h.p. Triumph, and another private owner of a 5 h.p. twin Vindec. The match was to be over a flying mile. We shall give the result next week.

Automobile Association Annual Dinner.

The band of H.M. Coldstream Guards, conducted by Lieut. Mackenzie Rogan, will be one of the attractions at the Automobile Association's third annual dinner, which will take place at the Hotel Cecil on March 18th.

The Hull A.C.C.

The annual general meeting of the club will be held on Friday, March 6th, at headquarters, at 8 p.m. A whist drive and dance have also been arranged to be held in the Salisbury Hall, Park Road, on Wednesday, March 25th next. Tickets, 2s 6d. and 4s. 6d. double (including refreshments), can now be obtained of the hon. sec. This season already promises to be most successful. Many prizes have been promised or presented to the club for competition. Inter-club meets and contests are now being arranged with all the well-known Northern clubs.

"Future of Motor Cycling."

This is the title of the next paper to be read before the members of the Auto Cycle Union on Friday next, 28th inst., at 8 p.m., at 119, Piccadilly, W., by Mr. H. G. Bell. In view of the great diversity of opinion which exists as to what will constitute the motor cycle of the future, the paper should be of great interest, as also should the discussion. The lightweight question will be specially dealt with, and several novelties of interest to motor cyclists, including the Motosacoche, Moto-Rêve, and K.D. attachments, will be on view. Any interested reader may obtain a ticket of admission upon application to the secretary, 18, Down Street, W.

Motor Cycles in America.

The motor cycle trade in America appears to be flourishing. The N.S.U. Motor Co. has recently opened American headquarters at 206, West 76th Street, New York, and Minerva motor cycles have been added to the list of Continental machines represented over the water.

Insufficient Address.

We have been asked to state that letters intended for members of the Motor Club, Coventry Street, London, are constantly being received by the hon. sec. of the Coventry Motor Club on account of them being addressed Motor Club, Coventry. The delay occasioned in reforwarding the letters can be avoided by writers paying attention to this matter.

Where the A.C.U. comes in.

We read in a contemporary that its chief contributor finds fault with the rules of the R.A.C. long-distance trials, in that vehicles with less than four wheels are excluded. He seems oblivious of the fact that, at any rate according to Somerset House, a three-wheeler is classed as a motor cycle, and, moreover, he appears to forget that the R.A.C. never has encroached on the provinces of the A.C.U., and is not likely to do so. If any maker of a three-wheeled motor vehicle wants his machine tested let him enter it for the Land's End to John-o'-Groat's run, when it will have the opportunity of accomplishing a feat which will test it sufficiently well to satisfy the most fastidious.

Hints and Tips for Motor Cyclists.

A Watford reader tells us that he finds "Hints and Tips," by "Road Rider," of great service. At present he cuts out the hints and tips every week from *The Motor Cycle* and pastes them into a 1d. exercise book for future reference. This is certainly a good plan, but he will no doubt save himself the trouble when we inform him that it is our intention to publish "Hints and Tips for Motor Cyclists" in book form as soon as the series has been completed in these columns.

A Winter Hill-climb.

The Lewisham Automobile Club has decided to hold its annual winter hill-climb on April 4th in the neighbourhood of Sevenoaks. The location of the hill will only be made known to entrants, in order to avoid the usual crowd of spectators. There will be five classes, as follows:

I. Tricar class. (In this class there is a challenge cup to be competed for.)
II. Single-cylindered motor bicycles.
III. Multi-cylindered motor bicycles.
IV. Lightweight motor bicycles.
V. Motor bicycles with sidecar attachments.

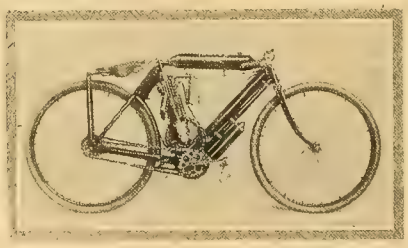
The two last-mentioned classes will be made a speciality of. Entry forms and full particulars can be obtained on application to the hon. sec., Mr. H. B. Renner, 31, Kidbrook Park Road, Blackheath, S.E.

The Tour de France.

Two or three weeks ago we mentioned that Grapperon, a well-known French motor cyclist, had commenced riding an Alcyon motor bicycle over the route known as the Tour de France, a distance of about 3,750 miles. We now hear that he has experienced extremely bad roads, as is to be expected at this time of the year, even in La Belle France, where the roads are probably superior to any in the world. On Saturday last Grapperon had reached Agen, and was reported to be making good progress despite the adverse weather.

New York Motor Cycle Mounted Police.

After the 1st of March the automobile speed merchants had better keep their weather eye open for the new motor cycle squad within the New York City Limits, for on that date the department will be equipped with sixteen low racing type motor bicycles capable of doing sixty miles per hour, which will be driven by the best motor experts that can be picked from the motor squad now in the department. We give an illustration of one of the machines herewith. In addition to



these, there will be two twin-cylinder bicycles to be used by the sergeants in charge of the squads in Manhattan and Brooklyn. The colour will not be green as at present, but of the regulation dark blue enamel. The squad will then be a total of fifty members doing duty in Greater New York.

FUTURE EVENTS.

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Mar. 2—Auto Cycle Union Annual Meeting of Private members, at 7-30 p.m.
" 21—A.C.U. Annual General Meeting of Council.
" 21-28—Cordingley's Motor Show, Agricultural Hall.
" 28—M.C.C. Opening Week-end Run to Brighton.
April 4—Lewisham A.C. Open Hill Climb for Motor Cycles.
" 16-20—M.C.C. Easter Tour.
" 18-20—Brooklands Motor Races.
" ——A.C.U. Quarterly Trial.
" 19 (Easter Monday)—Lincolnshire M.C.C. Hill Climb.
May 2—M.C.C. Members' Hill-climb.
" 9—Brooklands Motor Races.
" ——A.C.U. Annual Hill Climb.
June 5-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U. 24 Hours Ride.

Cordingley's Exhibition.

Will motor cycle manufacturers who intend to exhibit at Cordingley's show at the Agricultural Hall kindly send their names to the Editor?

Ripley Roadmenders' Dinners.

Further contributions to the above fund are as follows:

F. Bower	£0	2	6
Motor Cycling Club ...	1	1	0
J. Burden Barnes	0	5	0

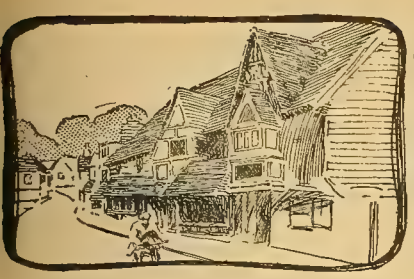
The amount received is a long way off the £30 wanted to enable the Auto Cycle Union to organise the dinners in the same manner as they have been carried out before. The first dinner is fixed for Saturday next, 29th inst., at the Angel Hotel, Thames Ditton, and the second on March 14th at the White Lion, Cobham.

A Word of Warning.

At this period of the year many readers of *The Motor Cycle* are on the look-out for second-hand machines or accessories, and there is no question of doubt that the miscellaneous advertisement columns of this journal are the best means of introducing the purchaser to the seller, and *vice versa*. We feel it is necessary, however, to issue a warning, and it refers more particularly to a class of buyer who appears to be on the increase. Our advice is never to imagine that you can obtain an article for £5, the market price of which is £10. If you see advertisements offering well-known makes of machines or accessories at absurdly low prices, *i.e.*, about half what you have previously understood to be their market value, do not part with any cash without first of all depositing the amount with us, and examining the articles. Instances have been brought to our knowledge lately where second-hand machines have been offered at a ridiculously low figure, and on investigation the description has proved to be entirely false.

The M.C.C. London to Edinburgh Run.

A Cambridge Undergraduate asks where he can find out all about the London to Edinburgh Run. He reads a great deal about it in *The Motor Cycle*, but he says it is difficult to learn anything about the rules and conditions, and thinks hundreds of other readers would be glad to see them in print. The London to Edinburgh twenty-four hours' run, we may say, is promoted annually by the Motor Cycling Club, and only members of that club are allowed to compete for the gold medal. The hon. sec. of the M.C.C. (Mr. Arthur Candler, 1, Lime Grove, Shepherd's Bush, W.) will no doubt be pleased to enrol new members, and to furnish full particulars relative to this popular event. The same aspiring competitor for the L.-E. run considers it would have been most useful if Mr. Bentley had given a list of his expenses in his interesting article, "The London to Edinburgh Run of 1907," which was concluded last week. Probably Mr. B. will oblige.



Southend and District M.C.

A smoking concert has been fixed for this (Wednesday) evening at the Victoria Hotel Ball Room. A good programme has been arranged.

Scarborough and District M.C.

At the general meeting of the above club, held last Wednesday evening, the officers and committee were elected for the ensuing year, and Mr. R. W. Ringrose was unanimously elected chairman of the club. It was decided to affiliate to the Auto Cycle Union. The hon. secretary and treasurer is Mr. J. W. F. Tranmer, 179, Dean Road, Scarborough.

Burton-on-Trent and District M.C.C.

The annual general meeting of the above recently-formed club is to be held at the club headquarters, the George Hotel, on Monday, March 2nd, at 8 p.m. There are about eighty riders in the Burton-on-Trent district, so that a strong club will undoubtedly be formed during the year. A cordial invitation to the above general meeting is extended to all motor cyclists, and further information can be obtained of the hon. secretary, Mr. Arthur W. Read, 119, Derby Street, Burton-on-Trent.

Liverpool M.C.

The following new rules have been adopted by the committee:

(1.) This club shall be affiliated to the Auto Cycle Union, each member thereby becoming an associate member of the Royal Automobile Club.

(2.) The annual subscription shall be: Motor car owners, 14s. 6d.; motor cycle owners, (city) 11s. 6d., (country) 7s. Subscriptions must be paid by March 31st. Members elected after that date must pay within one month of election. Members who have not paid their subscriptions cannot compete in any club event.

(3.) The management of the club, including the power to elect new members and to cancel membership, shall be vested in a committee consisting of the captain, sub-captain, secretary, and treasurer, reporting secretary, and eight members elected by the general meeting.

(4.) All members shall be under the rule of the captain or other officer in attendance on club runs.

Middlesbrough and District M.C.C.

On the 19th inst., at headquarters, Mr. Trusson delivered a lecture on "High and Low-tension Magnetos." Besides being an expert on the subject of various forms of ignition, the lecturer is also an ardent motor cyclist, and was therefore able to treat the subject in a most sympathetic manner. The lecture was illustrated with carefully prepared scale drawings and also complete magneto machines. Not the least interesting apparatus on show was one of Sir Oliver Lodge's B coils, which is capable of giving a good spark even in oil or tar. The sparks produced in the atmosphere jumped from one to three inches with the aid of an accumulator which was not fully charged. There was a large and appreciative audience present, and many most interesting questions were dealt with. The proceedings were concluded with a hearty vote of thanks, proposed by Mr. G. W. Liddle and seconded by Mr. W. A. Duchass. Prior to this lecture a committee meeting was held, and it was reported that all arrangements were being made for the holding of the annual dinner on March 4th, at which ladies are invited to be present. Arrangements have been made for holding a dance at the conclusion of the dinner, which is being held in the Assembly Rooms adjoining the Albert Park Hotel (Linthorpe), club headquarters. The dinner will commence at 7.45 prompt. Dancing, 10.45 till 2 a.m. Double tickets, 6s. 6d. inclusive.

Great Yarmouth and District M.C.C.

To-morrow (Thursday) the annual general meeting will be held at the Queen's Hotel, Great Yarmouth, at 8 p.m., preceded by a dinner at 7 p.m.

Surrey M.C.C.

It was unanimously decided at the recent general meeting of this club to affiliate to the Auto Cycle Union. The first annual dinner of the club has been fixed for early in April.

All motor cyclists living in Surrey are cordially invited to join the club. The hon. secretary is Mr. Arthur A. Hitch, Ashcott, Wodeland Road, Guildford, who will be pleased to give every information.

Motor Cycle Union of Ireland (Dublin Centre).

The annual general meeting of the above Union was held at Wynn's Hotel, Lower Abbey Street, on Monday of last week, Mr. T. W. Murphy in the chair.

After formal business, the report of the hon. treasurer was received and adopted.

The meeting then proceeded to elect officers and committee for the ensuing year. The elections resulted as follows: President, Mr. J. B. Dunlop, sen.; vice-presidents, Dr. B. Burke Kennedy, Messrs. W. R. McTaggart, C. Kavanagh, and C. B. Franklin; hon. secretary and treasurer, Mr. J. A. Armstrong; assistant secretary and treasurer, Mr. Noel E. Drury; hon. auditors, Messrs. T. W. Murphy and W. Keating; committee, Messrs. R. Walshe, O. S. Baker, W. Ladley, T. W. Murphy, H. Quinn, J. G. Drury, W. Beahan, P. Hurse, C. Lewis, H. Higginson, and E. Cannon.

It was decided to hold ordinary general meetings during the months of March, April, and May, and to hold the opening run on St. Patrick's Day, March 17th.

After a vote of thanks to the Chairman, the proceedings terminated.

Essex M.C.

The A.G.M. was held on Thursday last at headquarters, the Castle Hotel, Woodford; the captain (Mr. O. L. Summers) in the chair. The Secretary (Mr. A. G. Reynolds), in presenting his report, stated that 1907 had been a very successful year, both in respect of fixtures and membership, the latter now totalling 117, the majority of whom were active members. Among the most successful events of the year, he mentioned the hill-climb, race meeting, and gymkhana. The balance sheet showed the total receipts were £238 10s. 10d., and the payments £225 10s. 3d., leaving a balance in hand of £13 0s. 7d. The members have been well catered for in the matter of prizes, and great satisfaction was expressed at the result of the year's working. The report and balance sheet were adopted. The meeting then proceeded to elect officials for the ensuing year.

The new hon. sec., Mr. Harold Fuller.

Mr. Reynolds explained that since the inception of the club he had acted as general secretary and also as treasurer, but with the increased membership he found the duties too heavy, and therefore asked the meeting to appoint a new general secretary. If this were done he would be prepared to continue as treasurer. He suggested that the secretariat be split into three parts, viz., general, trials, and financial.

Mr. Harold Fuller, of "Wivenhoe," Wynndale Road, Woodford, Essex, was appointed general hon. sec.; Mr. A. G. Reynolds, "Rookstone," Woodford Green, financial hon. sec.; and Mr. E. J. Bass, Crown Hotel, Ongar, trials hon. sec. A vote of thanks to the retiring committee was passed, and one to the chairman terminated the proceedings.

Club News.—

Newcastle and District M.C.C.

The above club hold a whist drive and dance at the Minories Assembly Rooms, Jesmond Road, Newcastle, on Tuesday, March 3rd, at 7.15 p.m. to 1 a.m. Single tickets, including refreshments, 3s. 6d. each. Members are invited to bring their lady and gentleman friends. Tickets can be obtained from the hon. sec., S. W. Carty, 32, St. Mary's Place, Newcastle.

Lincolnshire M.C.C. (Scunthorpe Centre).

At a committee meeting held on Thursday last, it was decided to hold the general meeting at the Lord Roberts Hotel on March 11th, at 8.30 p.m. The opening run is fixed for Saturday afternoon, March 21st, and there will be hill-climbs for members of the centre on April 8th and 11th. Twenty-five members have already joined, and riders in the Scunthorpe district wishing to be enrolled should apply to Mr. J. Mears, 1, Cliff Gardens, Frodingham, Doncaster.

Birmingham M.C.C.

A very interesting meeting took place on the 8th inst. at headquarters, when Mr. R. Vernon C. Brook lectured before the members on "Variable Gears." Over forty lantern slides were shown, and the following gears, kindly lent by the respective manufacturers, were on view: Nala, Roc, Rex, Oppermann (two and three-speed), Phelon and Moore, Fitall, Osborne, Advance adjustable pulley, Vindec, and Anglian. An animated discussion followed, the members present being sharply divided on engine-shaft *v.* counter-shaft or hub gears, and belt *v.* chain.

The fifth annual dinner of the above club was celebrated on Saturday evening last at the Colonnade Hotel, Birmingham. Mr. R. W. Duke presided in the absence of the president, Mr. H. Austin. There was a good attendance of members, ladies, and friends, and after an excellent repast the toast list and musical programme was commenced.

The usual loyal toast having been honoured, the Chairman submitted the toast of "The Club," and in the course of his remarks referred to the great advancement made in the reliability of motor cycles since the club's inception. He regretted that more members did not attend club runs.

The Hon. Secretary (Mr. E. W. Winckle) responded, and announced that at a committee meeting held immediately prior to the dinner the new affiliation agreement with the Auto Cycle Union and R.A.C. had been signed. He gave an account of the doings of the club during 1907. A good series of competitions have been arranged for this year, he said, even more varied than last year.

The Chairman afterwards, on behalf of the committee, presented Mr. J. R. Bedford (the former hon. sec. and founder of the club five years ago) with an illuminated address and a cheque in appreciation of his invaluable services and untiring work in connection with the club. He has been very ably assisted in this work by Mrs. Bedford.

Mr. Bedford (who has recently removed his home to Reading) expressed his heartfelt thanks for the gifts, and assured the members that he would always treasure the address. Mr. Bedford explained that he never had more than one hobby, and that was motor cycling.

Other toasts were "The Visitors" and "The Chairman." Quite a number of prizes won in competitions during 1907 were presented during the evening. The musical programme was greatly enjoyed. *The Motor Cycle* was represented by Mr. Geoffrey Smith.

Leeds M.C.C.

At a committee meeting held on the 21st inst., Dr. E. F. Taylor, the president, announced his intention of presenting the club with a trophy value £10 10s., to be competed for by non-trade riders only. The L.M.C.C. now has in its possession seven valuable trophies for competition during 1908.

The Motor Cycling Club.

The second winter entertainment of the M.C.C., a Bohemian concert, was held at the Tudor Hotel, Oxford Street, on Tuesday evening of last week. The arrangements for the concert were in the hands of Dr. C. B. Moss-Blundell, and it must have been exceedingly gratifying to him to see such a large number of members, ladies, and friends, amongst whom was the President, Mr. Charles Jarrott. When the Chairman, Mr. S. H. Fry, announced the first song, there was hardly a seat unoccupied in the room. Dr. Moss-Blundell had provided a most excellent programme, and all present spent a most enjoyable evening.

The headquarters at Brighton for the opening run on March 28th and 29th will be the Old Ship Hotel, as in previous years where arrangements will be made for dinner, bed, and breakfast.

C. L. Marshall having resigned the office of captain of the club, E. B. Dickson has been elected in his stead.

The following have been elected riding officers for the present year: Messrs. L. A. Baddeley, S. H. Fry, E. Gwynne, C. J. Seed, H. G. R. Slingo, W. H. Wells, and Dr. C. Gibbons.

The undermentioned new members have recently been elected: A. H. Davison, A. D. Draper, B. F. G. Fowke, W. V. Jolly, T. Mann, M. W. Randle, and P. H. Trotman.

Motor Cycles at the Manchester Show.

The twelfth annual exhibition promoted by the Manchester and District Motor and Cycle Trades Association, Ltd., is again held at Belle Vue Gardens—a suitable venue, as there is unlimited space for trial runs within the grounds, of which, needless to say, full advantage is taken.

The show opened on Friday last, and closes next Saturday. It is very representative of every class of motor vehicle, and the motor cycle forms an important section of the whole.

Although there are but eight firms of local agents exhibiting motor cycles, many of the leading makes are well represented. It is noteworthy that the Triumph Cycle Co., who have a depot at 160, Deansgate, are not exhibiting, the main reason being that the firm are extremely busy with motor cycle orders. This causes the total number to fall below last year's figures, the total being thirty-eight. Mr. F. Bullock (chairman of the Association) is showing a National tricar, which was first introduced some two or three years ago.

The variation in numbers of motor cycles shown at the Manchester shows has been somewhat remarkable, the figures each year being as follows: 1901, 2 motor cycles of all kinds; 1902, 11; 1903, 78; 1904, 120; 1905, 35; 1906, 40; 1907, 49; 1908, 38. The defection of the past four years is not caused by any falling off in trade in the district. On the contrary, the number of motor cyclists has increased by leaps and bounds. The explanation is that the large makers are mostly content to exhibit through agents, who only show one or two samples instead of duplicates.

On Saturday the members of the Manchester Motor Club attended the show in full force, and good business was reported in the motor cycle section, which augurs well for motor cycling this year in the Manchester district.

The Northern Supply Co. show eight machines, viz., one light 1½ h.p. Wolf, one Victoria twin-cylinder on racing lines with torpedo tank, minus pedals (in appearance this is similar to the Dot exhibited at the Stanley Show), and six examples of the latest N.S.U. models.

Cookson Bros., of Old Trafford, have six Minervas in various styles; Lund and Davies, of Stockport, a selection of Midget bicars; and F. Bullock, a Brown, Peugeot, and National tricar.

James Hall and Co., an assortment of the L.M.C. machines which are exhibited in Manchester for the first time, and create a most favourable impression; also the Brown and the Whittle patent belt.

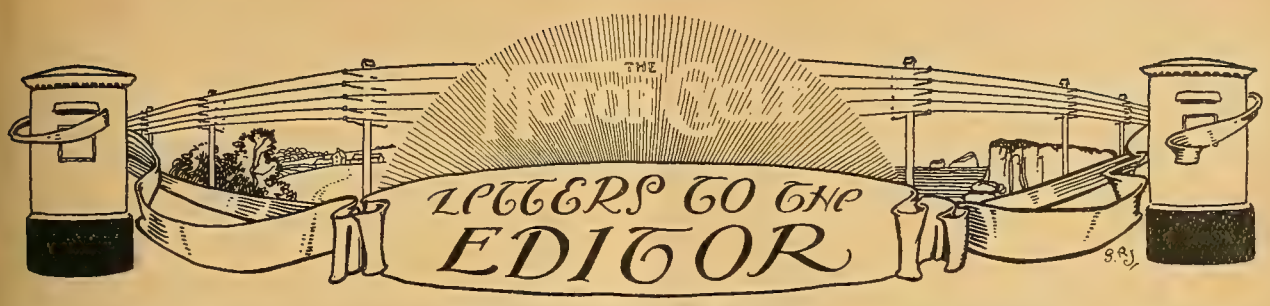
L. F. Harvey and Co. have a big display of the Rex and the Roc motor cycles, the latter being a 4 h.p. military model with two-speed gear.

V. Foxwell Gray, who is a prominent agent devoting his attention to motor cycles, has the Phœnix Trimo and Co. and three of the new Quadrant models.

H. Reed has a fine example of his new Dot light tourist without pedals, with a novel compensating jockey pulley to ensure perfect belt tension.

There is little in the way of novelty, and perhaps none but what has been fully described in *The Motor Cycle* from time to time.

Needless to say, there are also numerous exhibits appealing to motor cyclists in the way of engines, belts, sidecars, etc.



[The Editor does not hold himself responsible for the opinions of his correspondents]

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Road Conditions in New Zealand.

[3131.]—The motor bicycle is very popular here, and likewise the motor car, but the tricars, sidecars, and such con trivances are not satisfactory. Our roads are mostly wider and better graded than in England, but the surface is bad, being metalled with river shingle and pit gravel.

Featherstone, N.Z. STEWART AND SON

Sidecars.

[3132.]—I think it may interest prospective purchasers of sidecars for the coming season to state my experience in the matter. Having used the Montgomery sidecar with ordinary compensating joints all last year, I found same perfect in every way on dry roads, but in grease the arrangement was unsatisfactory, being very liable to side-slips.

After complaining to the firm and trying different devices, none of which were safe from side-slips, I had an opportunity of trying their latest non-skid device. This I find is absolutely ideal for ease of steering and freedom from side-slips and skidding on greasy roads. The sidecar can be driven with equal ease both with or without passenger.

I may add that Messrs. Montgomery and Co. have been most courteous in their dealings, and have exerted themselves to the utmost to give thorough satisfaction.

H. L. BOISSEL.

Graphite Lubrication.

[3133.]—Mr. Duckham's letter in *The Motor Cycle* was to me, and I daresay a few others, interesting. For the last two years I have lubricated my engine with graphite mixed with Moebius Challenge oil, and his remarks, in this case, do not agree with my experience. I had cause to fit new piston rings this winter, and upon examination found no deterioration whatever, except that expected after hard wear. There was no accumulation behind rings; in fact, the grooves were perfectly free and clean. I generally clean the head of my cylinder and piston three times a year, and all I find is a sticky matter, something after the style of thick treacle, which in no instance is ever present in any great quantity. My mode of lubrication is half a pump full every ten miles (2¾ h.p. engine). This I find often too much if I am not running fast.

I have never had a ring break, nor have the old ones which I have replaced, lost their spring to any great extent. What I contend is, that graphite used in proper quantities, with a good oil (and I find the above to fulfil its purpose in every way), will go a long way to lengthen the life of an engine where others fail. I have no interest in the makers of the oil mentioned.

LS 106.

[3134.]—I am a constant and interested reader of *The Motor Cycle*, and seeing now and again, and especially in letter 3107, various opinions on the use of graphite lubrication, I should like to give my experience of it.

Not long ago I bought a second-hand 3½ h.p. machine. It went very well just for about a two-mile run, so I thought one day I would venture on a run of five miles. When I had gone three my machine would not climb the easiest gradient, but when, to my annoyance, I had pushed it up a hill it would go well down the other side for about a mile.

When I came to examine the cylinder head and piston they were in very bad condition. The top of cylinder was covered with graphite to the depth of ⅛in., and the spaces between the piston rings were nearly filled with a hard crust.

I have had no trouble since taking the engine down and thoroughly cleaning it out and also the oil compartment.

There is no doubt graphite causes pre-ignition, as was the case with my engine. Graphite is a good piston lubricant, but I should not advise anybody to use it, as it entails constant dismantling to clean the piston top and the rings.

W. D. P.

Courtesy at the Show.

[3135.]—In reply to "AE 260" [letter No. 3114], I should like to say that he is wrong in saying "it is evident that 'BP 648' chanced on one or two firms who form no criterion of the English trade." I and my friends went to every stand in the show, and not one or two, but the majority, of the firms' assistants treated us most curtly.

May I also ask him, if the Minerva Co. is an English firm, are not their machines made abroad? I may be wrong, but recently when a friend sent for a new part for his car (a 20 h.p. Minerva), the agent told him that the part would have to be sent for abroad. I am not going to enter into a long correspondence on this matter, as I am much too busy, but my letter was written for the reason I gave in my first letter. The foreign firms took much more trouble to find out our wishes and help us than the majority of the English firms did. I gave exceptions in my first letter, so that his letter is not "an ample reply to your correspondent," who will not think more kindly of the English maker in future unless he treats him as well as did the foreign firms at the show.

BP 648.

Silence.

[3136.]—Despite your efforts and those of the A.C.U., I am afraid it cannot be denied that most of the motor cycles one meets on the road are still objectionably noisy. I therefore venture to describe a silencer which after about two years' spasmodic experimenting I have evolved, and which really does completely silence the engine except when the throttle is wide open and the spark very much retarded.

It consists, generally speaking, of a central pipe plugged up at its further end, and screwed both ends so as to form a bolt for the end plates of the silencer, which have rims to fit on the main shell surrounding the central pipe.

The chief point in this otherwise very simple silencer is that the end plates and main shell are annealed by heating them several times to a dull red and plunging them into cold water. This seems to take the ring out of the metal, and prevents the vibration set up by the inrush of the gases. There are twenty-four or more ⅛in. holes in the central pipe and in the main shell one hundred or so $\frac{1}{16}$in. holes. The silencer is 4in. diameter and 6in. long.

I have made no bench tests, but, compared with a free exhaust, the silencer shows no back pressure on the engine. With this silencer the exhaust cannot be heard at all by the rider unless he turns sidewise and leans down towards it, and even then it can only just be detected. When running fairly fast (about fifteen miles per hour and upwards), the only sound is valve noise.

The above silencer can be made by anyone with the aid of the village blacksmith at a cost of about 7s. 6d. I shall be pleased to make another for trial by the staff of *The Motor Cycle*. I am not interested in the manufacture of silencers, and do not intend to put it on the market.

G. D. MONICE.

Variable Gears.

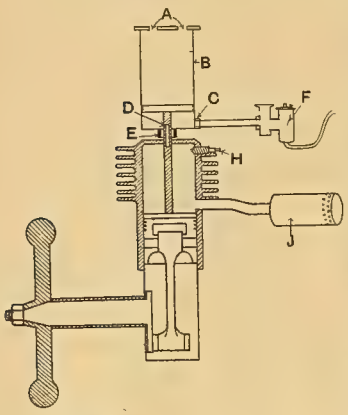
[3137.]—Regarding the letters on "Variable Gears for Motor Cycles," page 151, February 19th issue, signed R. English, I should very much like to see an illustration or sketches of the clutch described by Mr. English.

H. BENNETT.

[If Mr. English will oblige we will publish them.—ED.]

Two-stroke Engine Design.

[3138.]—Enclosed pleased find rough sketch of a two-stroke engine. I think the action will be easily seen from the sketch. Now that the day of light motor bicycles has come to stay, I thought if you could find space in your valuable paper I should like to hear the opinion of those interested, as I do not remember ever having seen anything quite like it. The special advantages I claim are impulse every revolution, cushioning towards the end of every stroke, consequently less vibration. The fresh charge coming in at the top would not be fouled by the last exploded charge. Only one valve, and that on the pump, consequently no burning. Cheapness and lightness. It has occurred to me many times lately that a good market is waiting for the small electric motor and accumulators, either built into a special machine or made to fit the existing roadster bicycles. There is nothing but petrol as yet. I have myself facilities for charging accumulators cheaply, and for journeys up to forty miles this would be very useful to me, and I am sure many others. A hint in your paper might wake the electrical people up to the possibilities.



A. Air holes.
B. Pump.
C. Inlet valve.
D. Slot in nickel steel rod.
E. Asbestos packing.
F. Carburetter.
H. Sparking plug.
J. Exhaust.

S.H.M.

[The engine design is not quite original, because the Bichrone two-stroke engine had the same principle but carried out differently, the pump being at an angle to the cylinder. We also believe stationary two-stroke gas engines have been made with the pump above the cylinder. The idea is, however, interesting.—ED.]

Semi-automatic Air Inlets.

[3139.]—I expect some of your readers have had trouble, as I have, with the automatic air shutters on that type of Longuemare carburetter which has that apparatus immediately beneath the jet chamber (Model M or O, I forget which). As your readers will remember, it consists of what may be described as two flat brass spoked wheels superincumbent on one another, and held together by a spring, so that the "spokes" in the one coincide with the spaces in the other in the normal position. I found that the pin which prevents the one revolving on the other tended to shake out of its socket, and thus at times the spaces were completely uncovered, thereby upsetting the mixture in a very annoying manner. I thereupon abolished the movable shutter, and took the small lid off one of the tall 1 lb. carbide tins, about 1½in. diameter (which just fitted), and drilled a large hole for the shutter to slide on the large central pin, and about a dozen $\frac{1}{8}$in. holes in the lid itself. I replaced the automatic device with the new shutter, and the whole has worked perfectly since, except in the coldest of weather, when a sudden opening of the throttle chokes the engine for a space. That could be cured by an air damper perhaps, but it is hardly practicable on a motor cycle. As this form of carburetter is very common, the remedy may, I hope, be useful.

G. D. MONICE.

Outside Flywheels.

[3140.]—In letter 3101 Mr. Hinton raises the point o comparative weight of the inside and outside flywheel engine I suggest the total saving with the O.F. type to be at leas 15 lbs., taking the same flywheel effect in both cases, an using an O.F. about 11½in. diameter.

It is not quite clear why this 15 lbs. should be put int footrests and crankshaft. Footrests are usually fixed to stiff part of the frame, and even if light, certainly sav damage in the case of a spill. Footboards are, of course superior in this respect, and, in my opinion, no motor cycl is complete without them.

If half an inch were added to the diameter of the crani case, with internal wheels, the resistance from the oil woul still be greater than with the O.F. type, on account of th greater radius at work.

Mr. Hinton forsakes his own cause when he states that m proposed crankshaft is little better than an overhung singl webshaft. By this it is evident he does not believe in a con joint, and yet he advocates four cone joints! If one con fixing under least stress, is no good, why are four cones satis factory? I still maintain the crank case diameter is reduce by my suggested methods; the radius of the cone fixing woul be no more than that of the big end.

Mr. Hinton points out that if a flywheel is cone fixed with out key it will slip or seize, unless the parts are hardened He makes an error. I can, at any time, show him (in Londo a flywheel fixed in this way, which can be taken off and r placed in five minutes. The shaft is unhardened, and n slipping or seizing occurs.

G. DE HAVILLAND.

Exchange Transactions.

[3141.]—Having read with interest Mr. Lake's lett regarding his appreciation of the Rex Co.'s exchang methods, and also a reply from "Rex 1904." in which h seems to doubt the possibility of fair treatment, I feel almo bound to give my own experience.

I may say that I had a twin-cylinder Rex which I ha bought second-hand locally, and I wrote to the Rex Co. as ing their best exchange terms for a Rex de Luxe model. received an offer by return on the Thursday preceding Augu Bank Holiday week, when they must have been busy. Bein satisfied with their offer, on the same day I telegraphed sa ing I accepted same, and would they forward at once as had made arrangements to go a short tour on the followir Saturday with some friends. I had a letter from them t following morning (Friday) saying they had despatched t machine to their order at Stourbridge Station, and await my remittance, and I was able to obtain delivery from t railway company on Saturday, and start straightaway f North Wales. As I was away from home for some day and being rather busy when I returned, I was unable send them my old mount (which they had not even seen) f nearly a fortnight after receipt of new one.

In the little I have had to do with this firm I have alwa found them most businesslike and reasonable.

H. J. FOLKES.

[3142.]—In reply to "Hastings" and "Rex 1904," m we trespass on your kindness to clearly state the princip of the Rex exchange policy?

In the first place, our experience in carrying out hundre of exchange transactions per annum has proved to us th the motor cycling public are most honourable in their de ings, and after five years of exchange business we are st willing to trust to description given by our customers, a ready to believe that the old machine will be forwarded wh new mount is ready for delivery, and we do not hesitate state that motor cyclists do not exist of the class mention by one of your correspondents.

In all transactions, whether direct or through our agen after satisfying ourselves as to the *bona fides* of the c tomers, we take all the risk, giving delivery immediate upon receipt of our client's cash payment, our only stipu tion being that the second-hand machine must be deliver to us carriage paid, complete, in reasonable condition a running order.

The policy of this company has always been to assist t motor cycling public, who realising this, universally do th utmost to enable us to carry out our exchange policy wit out delay or inconvenience to either party.

THE REX MOTOR MFG. CO., LTD.

Geared-up Flywheels.

[3143.]—The discussion *re* inside *v.* outside flywheels does not seem to raise the interest its importance entitles it to. Judging from my own experience and from the experience of other of your correspondents, the makers of single-cylinder engines do not appear to have any fixed idea of what constitutes the correct design of flywheel—that is to say, the flywheel bears no fixed proportion to the compression it has to overcome. In illustration of this, one machine geared perhaps three to one will start at almost a walking pace, whereas another geared, say, five to one will not go over the compression until a sprinting pace is got up.

It is accepted that a large flywheel of light weight is as efficient as a smaller flywheel of heavier weight. To go further, it follows that if the speed of the flywheel could be increased, say to revolve twice as fast as the crankshaft, the same efficiency would be obtained as with a very large flywheel, which it is, of course, impossible to have on a motor cycle. Therefore why not have a geared up flywheel?

The objections to a geared up flywheel would be the extra complication and perhaps increased cost, also the two gear wheels would have to be perfectly cut and run for thousands of miles without appreciable wear, as, of course, any backlash would be quite fatal to the running; but, seeing that the gear wheels of a car are now made to run tremendous distances with practically no wear at all, it should be possible in the case of a motor cycle engine.

If this idea was found practicable, the steadying effect of such a flywheel would ensure easy starting, slow running when necessary, greatly increased comfort in riding, less wear on tyres, and last, but not least, would overcome most of the objections which up to the present have been urged against the chain drive.

B. J. R.

The Motor Cycle in Warfare.

[3144.]—The following remarks may be of interest as showing a few of the uses to which the motor cycle could be put in war.

In many cases it can replace the horse as a means of locomotion, possessing as it does enormous advantages in the matter of speed, endurance, and range of action. For these advantages to be of any use, roads are a necessity, though they need not be by any means first-class. A good rider should, however, be able to take a single-track machine along any footpath on which a horse can be ridden.

I shall divide motor cycles into three classes:

1. Light motor bicycles, *i.e.*, up to 120 lbs., complete with fuel and spares.
2. Heavy motor bicycles and tricycles.
3. Passenger motor cycles.

Class 1.—The rider of No. 1 would be used as a scout and for carrying despatches. For these duties his machine must be silent. Being light, it raises little dust, and will be less conspicuous than a horseman going at any speed on an average road. The motor cyclist also has the advantage of being able to get from place to place much quicker than the horseman, and his machine does not get tired; nor does it have to be fed frequently, as it will run 150 miles on one feed of petrol and oil. He can take to footpaths across fields if necessary, for his machine in emergency could be lifted over stiles and similar obstacles by a strong man.

Class 2.—This class of riders would be used as despatch carriers over long distances and where speed is of consequence. They would naturally have to stick to the roads. Along the ordinary highway, unknown to the rider, who would probably have to keep off the main roads to some extent, 20 to 25 m.p.h. would be a good average speed. Two hundred miles could thus be easily covered in a day. For shorter distances and along main roads a better average would be made. Class 2 would be invaluable to armies moving along parallel roads a long distance apart in keeping up communication with each other.

Class 3 could be employed in carrying staff officers, etc., from point to point along a position; officers commanding extended lines of outposts; and officers visiting detached posts, standing patrols, etc. The heavier passenger machines should be capable of carrying two at a pinch, besides the driver.

I see no reason why a machine gun should not be mounted on a well-known make of Quadcar. The latest .303 Maxim with tripod only weighs about 90 lbs.

The rider should be able to do all minor repairs himself; should be a fair shot, and, if possible, be a signaller. He should have a very complete kit of spares, as in war time it would be difficult to procure them.

MILES.

Variable Gears.

[3145.]—After all the interesting discussions of late, I feel, as an ardent motor cyclist, very much inclined to send another letter on the desirable variation of gears, particularly for motor cycles and sidecars.

An early edition of a motor bicycle with two-speed gear and free engine came into my possession, which, as regards workmanship, was all that could be desired, but the design itself—solid drive, with worm and chain direct—was found faulty in practice. I discarded this gearing, and substituted a belt drive, and the result was surprising in every respect.

A free engine, in my opinion, does not always bring the desired easy manipulation in traffic, and handle starting, so much talked of lately, is a snare, as most practical engineers will confirm. Air-cooled engines with comparatively light flywheels are not meant to run absolutely free, and a well-tuned engine will preferably start by pushing at a walking pace.

As regards the two-speed gear on above machine, the ratios were one to five and one to nine, nowadays used on many two-speed geared machines. But is this the ideal?

This query I answer in the negative. By a series of experiments made on engines of different horse-power, I am enabled to state that, given an engine in fair condition, there is no need for such a conglomeration of driving gear wheels in either back hub or bottom bracket or anywhere else, as these of necessity mean loss of power.

One special mount of mine with a 4 h.p. engine used to climb Riverhill with a one to four and a half gear at limit pace, but would not climb it with a larger pulley and gear ratio of one to four. With the old pulley replaced the machine performed its duty again in grand style (without belt slipping) under precisely the same conditions. With a still larger pulley and a gear ratio of one to three and a half the machine was very fast indeed on the level, but would not climb hills at all, and unless the hills could be rushed at a prohibitive pace I was absolutely hung up.

The greater difficulty in starting a magneto ignited machine is in itself discomforting with a high gear, but a high gear is desirable on long level stretches. The moral of this is therefore that a variable gear should not be limited to two or four gears, but should be variable to the circumstances and road conditions against which the machine has to contend.

From actual experience with 2¼, 2¾, and 4 h.p. engines under average conditions, I came to the conclusion that a gear ratio varying between one to three and a half and one to eight is all that can be required for motor bicycles, even with a sidecar attached. I contend a variable pulley is all that is wanted, but this pulley must be cheap, simple, absolutely free from end thrust, and able to be locked in any position. Such a pulley I have designed.

F. M.

EXPERIENCES WANTED.

"H. D. H." would like readers' experiences of the 4½ h.p. twin-cylinder Minerva motor bicycle with regard to running, upkeep, wear, general behaviour, and hill-climbing.

SUMMARY OF CORRESPONDENCE.

The Bosch Magneto Co., Ltd., write that there is nothing in the statement, so far as they are concerned, which was made by "Ixion" under the heading of "Occasional Comments" on February 12th, viz., that makers fitted more substantial platina to car than to motor cycle magnetos. They, moreover, add that the platina on contact-makers should be white; if dark, it is a sign that the points require cleaning.

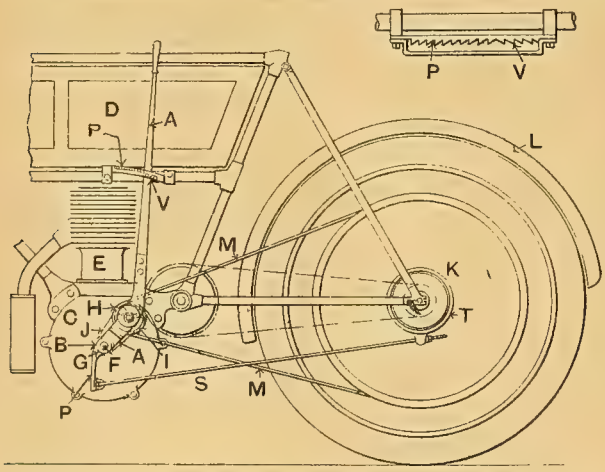
Sydney Maitland and Co. write: "'Road Rider' writes *re* patent cleansers, and we are surprised to find him unacquainted with the properties of Lyxavon. He says: 'None are a great help to remove dirt from the interstices of broken skin, the finger nails, and so on. Where special cleansers are employed, a good toilet preparation should be used when the hands are clean.' Lyxavon actually dissolves every trace of dirt from the pores and innermost recesses, and, incidentally, acts as a perfect antiseptic to open wounds. There is absolutely no necessity to use toilet preparations afterwards. We shall be pleased to forward a free sample to any of your readers who may care to apply to Prospect Place, Barnsbury, N."

RECENT PATENTS

By ERIC W. WALFORD, F.C.I.P.A.

A Combined Belt Tensioning Device and Band Brake.

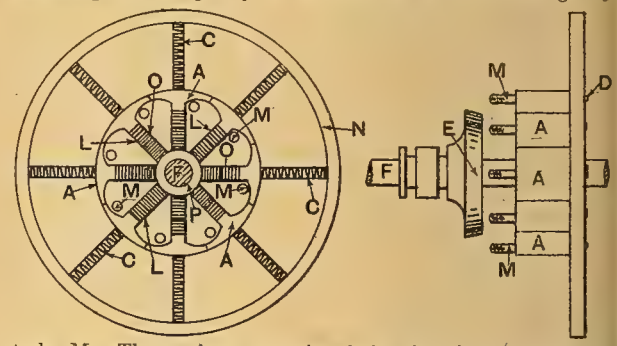
THIS is the invention of Mr. E. T. Robinson, 75, Grosvenor Road, St. Paul's, Bristol, and allows the rider full control over his driving belt by enabling him to tighten or slacken it at will, while riding, and also to slacken it sufficiently to allow the engine to run free while the belt remains stationary in its position on the driving pulley. The lever A has its fulcrum B formed on the boss of the crank case C of the engine E, and it is carried to the top of the petrol tank D. The ordinary engine pulley is taken off the engine-shaft or axle F, and in the place of it a sprocket G is fitted. Attached to the lever A at a suitable distance from the centre of the crank case C is a small belt pulley H, which is or may be the same size as the original engine pulley. This pulley H is mounted on ball or other bearings. There is also another sprocket I fixed to the side of the pulley H, or made in one piece with it. The pulley H with the sprocket I runs freely on a ball bearing secured to the lever A in a straight line above the centre of the crank case C. The sprocket G on the engine-shaft or axle F is connected to the sprocket I on the lever A by a short chain J. The small pulley H, which is fixed to this sprocket I, is then connected to the large pulley K on the rear or driving wheel L of the



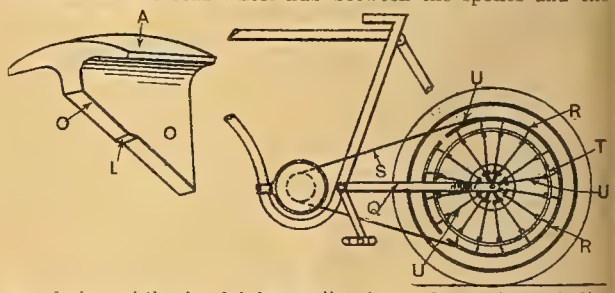
machine by a leather belt M. Thus, by pushing the lever A forward it carries with it the small belt pulley H, thereby creating a greater distance between the two pulleys H and K and thus tightening the belt M. By drawing the lever A back the belt M is slackened. The lever A can be held in any position by a ratchet and teeth P at the top end thereof. The lever A is also extended below the centre of the crank case C. To this extreme end of the lever A a rod S is fitted which applies a band brake T on the back pulley K. This brake T grips the pulley K when the belt M is at its slackest point, thereby allowing the engine to continue running free through the belt M being slackened to such an extent. The lever A is provided with a tooth which engages with ratchet teeth V cut the reverse way to the ratchet teeth P, thus acting to keep the brake T on while the engine is running free. To allow the machine to be driven along again by the engine, the lever A is simply pressed forward, the first movement of which releases the brake T, and the continued forward movement of the lever A tightens the belt until it takes sufficient grip on the pulley K to drive the machine, so that it only requires the lever A to be pulled for the driver to slacken the belt M sufficiently to stop the driving power and a further movement to apply a powerful band brake.

A Variable Speed Pulley.

THIS invention hails from Tasmania, the inventors being Messrs. A. M. Campbell and A. F. Golding. The pulley is constructed of a number of sections made so that the outside faces will form a complete circle when put together, and on the inside face of each section is a web which is made in taper form so that when put together the internal faces form a cone. These faces are provided with a step about midway down the face into which the operating cone E works. The sections are held in alignment by pins D which pass into slots C in which the springs are housed. The springs press on the outside of the sections, and by these and the studs M the sections are kept in proper position. One flange of the pulley is attached to the other flange by



studs M. The springs are placed in the slots, which are made by boring from the periphery of the flange, the hole so formed being opened out to make a groove. The width of the groove, however, should not be sufficient to permit its spring to drop out. After the parts are assembled, a ring N is secured on the periphery of the pulley for the purpose of strengthening the same and for confining the parts. The cone E operates as follows: When the cone is pushed into the pulley, its edge impinges against the ribs O of the sections and pushes them outwards against the springs C. The intermediate gear is obtained when the cone E rests on the step L. The inner ends of the ribs O rest on a collar P on the shaft F. In applying the invention to a motor bicycle, the pulley is mounted on the rear wheel hub between the spokes and the



rear forks, while the driving pulley is on the engine spindle. The rear fork Q is bent outwards to permit of the pulley and cone being accommodated. In this case the driven pulley would not directly take the belt, but the sections A thereof would be connected to sections R of the rim pulley upon which the belt S usually runs. The ring T which is attached to the spokes of the bicycle wheel is perforated to receive stout rods U that are connected at their lower ends to the sections A and at their upper ends to the rim sections R. The rods U pass through the ring T, and move accordingly as the pulley is expanded or contracted, thereby increasing or decreasing the diameter of the belt rim formed by the sections R.

MOTOR BICYCLES FOR SALE.

MAUDE'S List of second-hand motor cycles at present on hand; all guaranteed to be in perfect running order, and ready for the road.

MAUDE'S.—2¾ h.p. Vindec Special, like new, magneto; £22.

MAUDE'S.—6 h.p. Rex de Luxe, magneto, twin tyres, Roc free engine, like new; £28.

MAUDE'S.—5 h.p. Rex, spring forks, tremblers. 1907 model, like new, including tyres; £22.

MAUDE'S.—Twin Rex, 2¼in. tyres, special machine, a beauty; £22.

MAUDE'S. — 5 h.p. Rex, spring forks, beautiful condition; £19, our price.

MAUDE'S. — 4 h.p. Rushworth, 1907 model, 18in. frame, 2¼in. Clinchers; £18.

MAUDE'S.—2¾ h.p. De Dion, spray, long handle-bars, £12; 2 h.p. Antoine, £6.

MAUDE'S. — Bradbury, 2 h.p., vertical, very good tyres; £10.

MAUDE'S.—2 h.p. Minerva, spring forks, £8; twin Minerva, 1907, splendid condition, £25.

MAUDE'S.—£1 down and six monthly payments of 20s. secures 1¾ h.p. Minerva, 2 h.p. Antoine, or 2¾ h.p. Mitchell, all guaranteed ready for the road.

MAUDE'S.—Beautiful 1905 Rex, in perfect order and condition; £12.

MAUDE'S.—30s. down and six monthly payments of 35s. secures 3½ h.p. M.M.C., 2¾ h.p. Lloyds, 2¾ h.p. De Dion, 2¾ h.p. Humber, or 2¼ h.p. Phœnix Minerva, as new.

MAUDE'S. — Ideal lightweights. Machines we can recommend as lightweights; 2 h.p. Minerva, £8; Ariel, 2½ h.p., £8; Mitchell, 2¼ h.p., £6.

MAUDE'S.—3½ h.p. Excelsior, M.M.C. engine, perfect, tyres practically new; £12.

MAUDE'S. — Minerva, 2 h.p., spring forks, £9; M.M.C., vertical, spray, 26in. wheels, trembler, £10.

MAUDE'S.—3 h.p. Noble, vertical, spray, very good tyres; £10.

MAUDE'S.—Humber, 2¾ h.p., a beauty, £9; 2¾ h.p. Kerry, spray, low built, B100 saddle, £9.

MAUDE'S.—Clarendon, 1906 model, 26in. wheels, ball bearing engine, enamelled green, absolutely like new; £15.

MAUDE'S.—6 h.p. Ariel-Jap, non-skid rear, new Continental front, guaranteed to climb 1 in 6; £25.

MAUDE'S.—Minerva, 2¼ h.p., spray, very good tyres; a machine we can highly recommend; £12.

MAUDE'S.—1906 Rex, footbrake, footboards fitted, an exceptional climber; £15 15s.

MAUDE'S. — Twin Werner, 3½ h.p., a splendid climber, and very reliable; £18.

MAUDE'S.—Jap, spray carburetter, as new; £9.

MAUDE'S.—3½ h.p. M.M.C., vertical engine, 26in. wheels, spray carburetter, good tyres, powerful; £12.

MAUDE'S. — Rex, 26in. wheels, 1905 model, perfect; we guarantee this machine to be as new in every way; £15.

MAUDE'S.—Rex, low built, 26in. wheels, spray, trembler, good tyres, and a very fine puller; £12.

MAUDE'S.—2 h.p. Quadrant-Minerva, spray, V belt, a very good lightweight; £8.

MAUDE'S. — Quadrant, new cylinder fitted, just overhauled, spray; a pity to miss this at £10.

MAUDE'S.—Lloyds, 2¾ h.p., B. and B. carburetter, £12; Rex, 3½ h.p., trembler, good tyres, Phœnix two-speed gear, fine puller, £15.

MAUDE'S.—We find it utterly impossible to list all the motor cycles we have for disposal, so let us have your requirements and we shall be only too pleased to quote.

MAUDE'S Motor Mart guarantee all the above to be in perfect running order, and ready for the road before delivery.

NOTE!!

We are commencing a series of Auction Sales for Motor Cycles and Accessories, to be held at Powell Street (behind the Victoria Hall) on the first Thursday in the month, the first to commence on Thursday, March 5th, and entries may now be received for this sale, the charges being seven and a half per cent. sales, and **2/6 no sale.** Cleaned up free of charge.

NOTE.—We cannot accept any motor cycle which is not guaranteed to be in perfect running order in every respect, and we guarantee that every one sold is perfect, and they may be seen **on the road** on the Wednesday previous to the sale.

ENTRIES

for the first sale may now be received, and offers may be sent per post for any particular machine, list, of which we shall be pleased to send upon receipt of penny stamp.

AUCTIONEER.—MR. SYDNEY CLARKSON, Town Hall Chambers, Halifax.

Any further particulars may be had upon request.

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Why not avail yourself of our contract for Minervas, and get your exchanges at a lower rate than others can offer you? It only costs one penny to write for terms for exchange, and there is no harm done if you do not deal.

SPECIAL TERMS also arranged for the latest lightweight MOTO-REVE, 35 guineas, twin-cylinder, magneto, Continental tyres, and light as pastry. Catalogues willingly sent upon application.

SECOND-HAND MOTOR CYCLES.

1907 MINERVA, twin cylinder, 4½ h.p.	£24
1907 REX DE LUX, magneto, free engine, low built	28
1907 REX, twin cylinder, 5 h.p.	22
1907 N.S.U., magneto	20
1906 REX, 3½ h.p., a beauty	15
1906 WERNER, twin cylinder	18
1906 CLARENDON, ball bearing engine	15
1906 MINERVA, 2¼ h.p.	14
1906 REX, cantilever seat	19
1906 JAP, 6 h.p.	25
1906 STANDARD, 2 h.p., as new	14

IDEAL LIGHTWEIGHTS.

2 h.p. **GRIFFON,** vertical	£13
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1¾ h.p. **MINERVA**	5
2 h.p. **ORMONDE,** spray	8
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TRICARS.

RILEY TRICAR, 4½ h.p., water-cooled, two speeds, condition as new	£38
REX TRIETTE, 6 h.p., cantilever seat	28
REX TRIETTE, 3½ h.p., good condition	15
REX TRICAR, foot brake, two speeds	16

Send for List before buying TYRES.

3/- allowed for old cover, and **1/6** for tube in part for any make of tyres.

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All guaranteed twelve months by the makers.

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Humber size	**15/-** „
Minerva size	**17/-** „

7/- allowed for your old accumulator in part payment.

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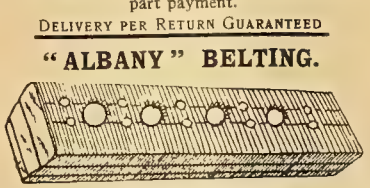

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2½ h.p. Kerry, low, long bars, not ridden 50 miles; bought tricar; absolute bargain, £13.—C.G., Bedford Chambers, Covent Garden, London.

3½ h.p. Brown, new tyres, horn, and belt, guaranteed in splendid running order; £22; approval, deposit.—Richmond, Chemist, Chorley.

3⅜ h.p. Rex, 1906, spring forks, new Clincher, spares, in first-class condition; £14 10s., or near offer.—9,244, *The Motor Cycle* Offices, Coventry.

3⅜ h.p. Rex, tools, spares, accessories, overalls, goggles, everything sound; what exchanges?—John Gaunt, High Street, Camden Town, London.

MINERVA, 2¼ h.p., B.S.A. throughout; Longuemare carburetter, Palmer, nearly new; spares, £10; evening —54, Moray Road, Finsbury Park.

1907 Twin Rex, very little used, exceptionally easy starter, very powerful, stand, carrier, etc.; £19 10s., bargain.—51, Statham Street, Derby.

F.N. 1¾ h.p. Lightweight, just thoroughly overhauled, nearly new tyres; £25, stand and carrier, complete.—A.N.G., 79, Tamworth Road, Croydon

3 h.p. Bradbury, also 3 h.p. Humber, free engine, both reliable machines; £14 each, or exchange for 1908 3½ h.p. —Dunstan, 155, Bentley Road, Doncaster.

NOBLE, 3 h.p., low position, long bars, patent saddle, Longuemare carburetter, Dunlops, Gloria belt, engine almost new; £10 10s.—207, Peckham Rye.

FAFNIR, 3 h.p., Chater-Lea, Whittle belt, Clinchers, three accumulators, lamp, all spares, sound, reliable, powerful; £15.—Trinder, Ravenswood, Honor Oak, S.E.

3½ h.p. M.M.C., Longuemare, accessories, spares, thorough good condition, just overhauled; bargain, £10 10s., immediate cash.—32, Bartholomew Road, N.W.

LATEST 1908 Tourist 3½ h.p. Magneto Rex, Clinchers, spring forks, Dermatine belt, black and gold, never been ridden; 30 guineas.—Holmes, Mill Hill, Cowes.

2¼ h.p. Fafnir, vertical engine, very low built, splendid running order and condition; bargain, £8 10s., or push bike and cash.—250, Glyn Road, Lower Clapton.

FAFNIR, 1907, 3½ h.p., Chater-Lea, low built, two accumulators, Dermatine belt, footrests, accessories, very reliable; £25; bought car.—57, Argyle Road, Ilford.

2¾ h.p. F.N. throughout, Dunlops, good going order, low, lamp, stand, tools, etc.; £12, or near offer. — Daniel, The Oak, Cann Hall Road, Leytonstone.

3 h.p. 1906 Advance, light and low, certificate for Birdlip, Advance adjustable pulley, spares; £17, or near offer.—278, South Lambeth Road, Clapham.

TRIUMPH, 3½ h.p., magneto, brand new, fresh from works, never unpacked from crate, latest 1907, fully guaranteed; £38, genuine bargain.—Milburn, Marlborough.

3½ h.p. Motor Cycle, F.N. engine, single cylinder, chain drive, free engine, metal clutch, excellent condition; £12 10s.—9,246, *The Motor Cycle* Offices, Coventry.

TRIUMPH, 3½ h.p., 1907, magneto, spring forks, prize hill-climber, splendid condition, never had breakdown; £32 cash; trial.—9,115, *The Motor Cycle* Offices, Coventry.

3½ h.p. Ariel-Minerva, 26in. Dunlops, new Continental belt, new coil, two accumulators, Price's stand, etc.; a great bargain, £16 10s., prompt cash.—W. E. Madge, 24, Southgate Road, London, N.

5 h.p. Twin Antoine, Simms-Bosch magneto, perfect condition, not done 2 000. Headlight, carrier, toolbags, spanners, spare valves, numbers; £23, or exchange lower power.—36, Carter Street, Walworth.

TRIUMPH, 3 h.p., magneto, Stanley-Dermatine belt, horn, separate generator lamp, tools, spares, grand condition throughout; £30; seen by appointment; approval.—253, Slade Road, Aston, Birmingham.

MOTOR BICYCLES FOR SALE.

TWIN Rex, 5-6 h.p., cantilever, new condition, fast, flexibile engine, new Continental belt, special contacts, two accumulators; £15 10s.—Prof. Short, Llandudno.

2¾-3 h.p. Werner Motor Cycle, modern low built frame, just overhauled, first-class condition; ready for the road; £12 10s.—Hibbert, 1, Burkitt Street, Hyde, Cheshire.

3½ h.p. Humber, excellent condition, exceptionally fast, Longuemare, new Peter-Union and non-skid; £12, or nearest offer.—Byron, 40, Gilmore Road, Lewisham, S.E.

3½ h.p. Kerry, Brown and Barlow carburetter, tyres perfect, very low frame, long handles, tools, etc.; £13 13s.—Write, Motor, 56, Cranley Gardens, Muswell Hill, N.

1907 3½ h.p. Minerva, perfect order, tyres splendid condition, not gone 1,000 miles, Advance pulley; particulars; £17.—Box 9,239, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

2½ h.p. Brown Lightweight, Longuemare, new tyres, belt, valves, etc., Jebron contacts, special silencer, condition as new; £14.—A. L. Haynes, Enfield Highway.

TRIUMPH, 1907, 3½ h.p., brand new, never ridden, just delivered from makers, magneto, spring forks; £38, guaranteed.—Harvey, 129, South Lambeth Road, Vauxhall.

5 h.p. Vindec, late 1907, Vindec two-speed gear, perfect condition, many improvements and extras; £42.—1, Fieldsway House, Fieldsway Crescent, Highbury Crescent, N.

HANDSOME Lightweight, 1¾ h.p. Minerva engine, new tyres, back pedalling and front brakes, Guenet coil, perfect order; £4 19s. 6d.—Motorist, 29, Chester Street, Wolverhampton.

N.S.U. 1907 6 h.p. Motor Cycle, magneto, spring forks and N.S.U. two-speed gear, condition as new; also Mills and Fulford castor wheel sidecar; bargain, £45.—Allen Bros., Stockport.

£10 10s.—2¾ h.p. International, good going order, guaranteed excellent condition, dark green finish, enamel just new; trial given. — Write, Shepherd, 75, Langham Road, Teddington.

£16 16s.—3½ h.p. Brown, 2½ Palmer cords, Brooks saddle, Watawata belt, brass tanks, E.I.C. coil, two accumulators, will take sidecar.—C. Russell, Corset Maker, 35, Vicarage Lane, Stratford.

h.p. Twin Antoine, powerful, splendid condition, 2½ Dunlops, exhaust lifter, Millennium stand, horn, three pulleys, two belts, spares; bargain, £19 10s.—Withecomb, Disley, Cheshire.

BIRMINGHAM.—5 h.p. Rex, 1907, latest black finish, absolutely perfect, climb anything, footboards, electric horn, lamp, etc.; £22; cash wanted. — Laughton, 178, Runcorn Road.

1907 Minerva, 3½ h.p., scarcely soiled, and condition guaranteed as new, every accessory and spares; 19 guineas; owner bought tricar; genuine bargain.—Grace, tobacconist, Slough.

FOR Sale, 3½ h.p. Chase Motor Bicycle, climb anything, 26in. wheels, low frame, Dunlops, trembler coil; expert examination courted; £20, or near offer.—30, Upper Street, Islington.

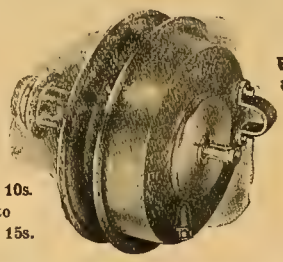
1907 N.S.U., 3½ h.p., magneto, spring forks, 24in. wheels, practically new, tyres unpunctured, spares; seen any time; trial by appointment; £28.—Cook, The Warren, Wanstead, Essex.

WHAT Offers for brand new Motosacoche, Clincher tandem tyres, lamp, horn, stand, and spares, complete, ready for road.—Cyclist, Araby House, Grosvenor Street, Cheltenham.

3½ h.p. Kerry and Sidecar, in excellent condition, very low and fast, new Clincher tyres, a thoroughly genuine bargain, only 18 guineas.—Owner, 19, Ashgrove Road, Goodmayes, Ilford.

2¼ h.p. Lightweight, Clincher tyres, Longuemare, torpedo tank, complete, perfect order; £7, or £6 and set of carpenter's tools; photo sent.—Hanson, 11, Little South Street, Coventry.

Like Oil to the Engine is the Phœnix two-speed Gear to the Bicycle.



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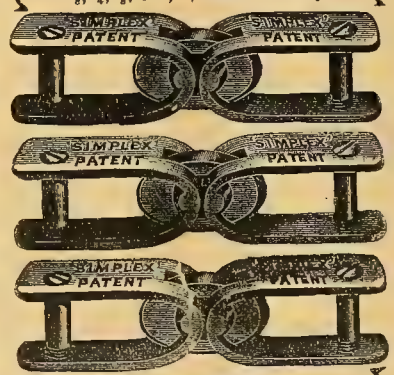
"SIMPLEX" PATENT Belt Fasteners.

⅛, ¾, ⅞, 1in., 1/- each all sizes,



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MOTOR BICYCLES FOR SALE.

2¾ h.p. 1908 Minerva Motor Cycle, new not used; owner bought tricar; will sacrifice; what offers?—408, Lincoln Road, Peterborough.

FOR Sale, Triumph, 3½ h.p., new August, 1907, ridden 800 miles, good condition, studded back tyre; £36, or near offer.—H. Gartrell, Chapel Street, Penzance.

2 h.p. Triumph Motor Cycle, Minerva engine, low and light, long footboards, Longuemare, tyres nearly new, many spares; £12 10s.—Kendrick, 10, Sayesbury Road, Sawbridgeworth.

F.N., four-cylinder, 3½ h.p., late 1906, condition as new, just overhauled, maker's guarantee, several spares; Birmingham district; £25, or offer.—9,245, *The Motor Cycle* Offices, Coventry.

3¼ h.p. Rex, perfect condition, spring forks, spring saddle, low position, long handle-bars, Price's stand, carrier, spares and tools; £13 10s.—Thomas, 20, Longridge Road, South Kensington.

3 h.p. Howe, vertical engine, Longuemare, girder forks, tyres, splendid condition, stand, recently overhauled, sound; deposit; approval; £12 10s.—Moldgreen Engineering Works, Huddersfield.

2¾ h.p. Clyde, magneto, long handle-bars, low position, A Won Clinchers, unpunctured, spares, splendid condition; £15, or exchange higher power magneto.—19, Cheriton Square, Balham.

4 h.p., twin-cylinder, Xl'all, splendid condition, variable pulley, accessories and spares, with Mill's forecarriage attachment, complete; £18; sell separate.—Field, 58, Church Road, Northfield, Birmingham.

FOR Sale, 1907 5 h.p. Rex de Luxe, twin tyre, Roc free engine clutch, magneto; not ridden 100 miles, splendid condition, tyres unscratched and unpunctured; £27; deposit.—E. Byrne, Slane, Drogheda.

3½ h.p. Alldays and Onions, with spring forks, spares and accessories, £18; Mills and Fulford sidecar, £5; 2¾ h.p. cycle, Minerva engine, £12; all in perfect running order.—J. James, 139, Acre Lane, Brixton, S.W.

1904 Rex, Davison tank, petrol and oil gauges, Longuemare, Watawata, Acetyphote lamp, horn, stand, re-plated, enamelled, splendid running condition; £18. — Pool, La Quinta, Station Road, Fleet, Hants.

3 h.p. Coventry Humber, free engine, Palmer tyres, spring saddle-pillar, tyres, plate, and enamel perfect, in perfect running order; seen after 6; any trial.—G.W., 99, Coningham Road, Shepherd's Bush, W.

4¼ h.p. Peugeot, single-cylinder, 87 by 92, No. 6 Chater-Lea frame, 2½in. tyres, footboards, Bowden band brake, accessories, almost new; £19; trial by appointment.—S.H.F., 43, Clarendon Road, Putney, London.

LATEST 5 h.p. Twin Belvedere, very low frame, 26in. Palmer cords, capacity two gallons petrol, half gallon oil, not ridden 600 miles; written guarantee given; £27 10s.—Jennings, 268, Hornsey Road, Holloway.

6 h.p. Ariel-Jap Twin, 2½ Dunlops, Whittle belt, Brooks B100, Liberty stand and carrier; this is brand new, and very slightly shop-soiled; listed at 45 guineas, will take £40.—Page, 74, East Hill, Dartford, Kent.

5 h.p. Twin Rex, winner Buxton hill-climb, brand new Dermatine belt, spare Whittle belt, Fuller syntonic coils, thumbslide control, electric horn, stand, spares; approval; 19 guineas.—C. Lloyd, Shirburn, Ramsgate.

TRIUMPH, two-speed (N.S.U.), 3 h.p., magneto, good condition throughout, upheld reputation for a no-trouble machine in last Quarterly Trials; best cash above £20.—A. D. Draper, 53, Chepstow Place, London.

3¼ h.p. Rex, new tyres, newly enamelled and thoroughly overhauled, never been on the road since I paid £5 for it doing up, guaranteed perfect running order; £10 10s.—Askham, Commercial Road, Kirkstall.

MOTOR BICYCLES FOR SALE.

ANGLIAN Motor Cycles, with simplest and most practical two-speed gear.—Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

IDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London Agents, H. P. Rose Ltd., 28, Frith Street, Shaftesbury Avenue, W.

FAFNIR, 3 h.p., just overhauled, splendid hill-climber; sacrifice £12. — 96, Bromley Street. Stepney, E.

ROC and N.S.U. Agent.—In stock: 4 h.p. Roc, with two-speed gear, 3 h.p., 3½ h.p., and 6 h.p. N.S.U.'s.—Hodgson, 10, Horton Road, Bradford.

BEESTON Humber, 3½ h.p., Longuemare, fast and powerful, in perfect condition; lowest £13, bargain. — 23, Johnson Road, Marton, Blackpool.

QUADRANTS.—Several 3½ h.p., excellent condition, taken in exchange, and thoroughly overhauled.—Quadrant Motor Co., Ltd., Earlsdon, Coventry.

HUMBER, 3 h.p., handle starting, free engine, very fast, condition perfect, guarantee given; £14, cash wanted.—Collins, 28, Gathorne Road, Wood Green, N.

2¼-3 h.p. Fairy, twin-cylinder, all accessories, Acetyphote, toolbag, stand, spare accumulator, excellent running order; £15.—9,247, *The Motor Cycle* Offices, Coventry.

2¾ h.p. Pebok, spring forks, B100, Universal silencer, good running order; £12 10s., exchange higher power, 3½ h.p. Minerva preferred, and cash. — Sherwood, Clarence Road, Teddington.

3½ h.p., built by Phœnix Motors, two-speed gear, starting handle, spring forks, footboards, Palmer cord, recently thoroughly overhauled, splendid condition; £25, or offers.—Apply, Brown, 52, Alexandra Street, Southend-on-Sea.

3 h.p. Humber, free engine, low seat, long bars, new Samson non-skid on back, new patent non-skid on front, £11: also another 3 h.p. Humber, £7; also sidecar, upholstered green, £2. — The Motor Repair and Supply Co., 107, Bridge Road, Hammersmith, W.

1907 3½ h.p. Quadrant, magneto, spring forks, faultless; this machine is hardly in second-hand condition, but to all intents and purposes brand new, absolutely perfect throughout; thundering bargain, £30, or will accept another machine with cash.—Motorist, 86, Colvestone Crescent, Dalston, London.

BARGAINS, for quick sale.—Owner going away, has no further use for 1907 twin Rex, magneto iguition, non-skid, spares, spare tank, splendid condition, £24; road trial; Osborne gear, fit twin, £2 10s.; Beeston Humber bike, Duplex cross frame, like new, £6 10s.—No. 9,248, *The Motor Cycle* Offices, Coventry.

STAMFORD HILL.—3½ h.p. Minerva, £18; 3½ h.p. Brown, £16; 3½ h.p. Bat, £16; 4½ h.p. twin Minerva, spring forks, new tyres, £26 10s.; 3½ h.p. Twin Werner, £16 10s.; 3 h.p. Trent, Chater-Lea, £12 10s.; 3½ h.p. M.M.C., Chater-Lea, £11 10s.; 2 h.p. Rex, 2½ h.p. Humber, £8 each; 2 h.p. Precision, £6 10s.; 2 h.p. Raleigh, £4 10s.; seen and tried any time.—128, High Road, Tottenham.

SPECIAL Clearance Line.—2¾ h.p. Ormonde, £6 10s.; 2¾ h.p. King, M.M.C. engine, Chater-Lea frame, £10; 3 h.p. Aster, Chater-Lea frame, £8 10s.; 2 h.p. Werner, £5 15s.; 3½ h.p. 1904 Rex, £10; 2¼ h.p. Aurora, £5 10s.; 2 h.p. No. 1 Minerva, £6 10s.; 4 h.p. M.M.O. pattern, spring forks, £12 10s.; 2¾ h.p. Minerva, vertical, M.O.V., £10 10s.; 3 h.p. Calvert, £5 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

SIX 1907 Triumphs, two 1906 Triumphs, two 1907 Vindec twins, all magneto ignition, perfect condition, all been thoroughly overhauled and tested; also a 2¾ h.p. F.N., spring forks; and 3 h.p. Clarendon, green finish, spring forks; every machine a bargain, and to be cleared at very low figures to make room for the new Triumphs which are now arriving daily.—Eric S. Myers, 62, Manningham Lane, Bradford.

When requiring an exchange Don't forget Wauchope's

the largest dealers, who will quote the best market price for your Second-hand Motor Cycle, Light Car, or Tricar, in payment or part payment for up-to-date 1908 Motor Cycles, as Triumphs, Quadrants, N.S.U.'s, F.N.'s, Ariels, Minervas, Vindec Specials, Browns, Motosacoches, Moto-Reves, Bats, Peugeots, Griffons, Lurquin and Couderts, etc.

UNSOLICITED TESTIMONIAL.

"Messrs. Wauchope's, 9, Shoe Lane, Fleet St., E.C.

"Dear Sirs,—I want here to state that I am perfectly satisfied with the transaction, and shall certainly give my future orders to you, as well as to tell all my friends that the best place for anything in the motor line is Wauchope's.

"Perhaps you will have seen in 'The Motor Cycle' this week that one gentleman is complaining very bitterly about the way he has been treated in an exchange transaction. As I have stated above, I am more than satisfied, and if you will write and tell me so, I will write to 'The Motor Cycle' telling them of our transaction in full in order to show motor cyclists in general that if there are firms of, shall we say, 'sharks,' there is at least one firm with whom motorists can deal knowing that they will be treated with just fairness that they can have every confidence in.

"Again thanking you for the kind way in which you have treated me,

"(Signed) ROBERT DICKINSON."

February Clearance Lists.

4 h.p.	TWIN HAMILTON	£12 12
3 h.p.	ARIEL, vertical engine	10 10
3½ h.p.	N.S.U., magneto ignition	19 19
3 h.p.	CHASE, Decart engine, Chater-Lea frame	16 10
3½ h.p.	1905 REX, 26in. wheels	12 10
3½ h.p.	No. 1 ARIEL vertical engine	15 15
3 h.p.	FAFNIR, Chater-Lea frame	15 0
4 h.p.	ROC, Stephens engine	21 0
2½ h.p.	TRIUMPH, light weight	14 10
5 h.p.	VINDEC SPECIAL, magneto, Triumph, Truffault	38 0
3½ h.p.	KING, Chater-Lea frame, fitted with M.M.C. engine	12 10
2 h.p.	DE DION, New Hudson, light weight	10 10
2½ h.p.	New light ARIEL, latest model	27 10
2½ h.p.	KERRY	10 10
3½ h.p.	QUADRANT, 1907	20 guineas
2¾ h.p.	ORMONDE	6 10
3½ h.p.	MINERVA, Chater-Lea frame	17 10
3½ h.p.	M.M.C., Chater-Lea frame	10 10
2½ h.p.	Lady's CLEMENT-GARRARD	12 10
3½ h.p.	QUADRANT, magneto	22 10
3½ h.p.	1904 REX, spring forks	10 10
3½ h.p.	1907 magneto, TRIUMPH	32 10
5 h.p.	1908 Twin-cylinder REX DE LUX, magneto, free engine (new), black finish	35 0
6 h.p.	Twin magneto RAT, Jap engine	32 10
3 h.p.	Magneto, TRIUMPH, 1906	25 0
2¾ h.p.	VINDEC SPECIAL	14 10
3½ h.p.	MINERVA, 1907 model	19 19
2¾ h.p.	MINERVA, 1907 model	10 10
4 h.p.	Twin-cylinder, 1907, WERNER	15 15
3½ h.p.	Magneto, spring forks, 1907, new TRIUMPH	41 0
4 h.p.	M.M.C. pattern, vertical, spring forks	12 10
3½ h.p.	VINDEC SPECIAL, 1907 model, two speeds, spring forks, magneto	35 0
3½ h.p.	PHŒNIX, two-speed, vertical	23 0
3 h.p.	SINGER, ball bearing engine	19 0
2 h.p.	MINERVA	7 10
3½ h.p.	MINERVA, 1907 model, spring forks	21 0
1¾ h.p.	MINERVA	5 15
1¾ h.p.	Light weight F.N., magneto, spring forks	25 0
2¾ h.p.	PHŒNIX, two-speed gear	17 10
5 h.p.	VINDEC, 1907 model, two speeds, magneto, Truffault	44 0
3½ h.p.	JEHU, Fafnir free engine	13 0
3½ h.p.	TWIN ALCYON	19 0
2¾ h.p.	MINERVA, M.O.V., vertical	10 10
3½ h.p.	N.S.U., 1907	16 10
3½ h.p.	ROYAL STAR	16 0
4½ h.p.	Twin-cylinder MINERVA, 1907 model	26 10
3½ h.p.	MINERVA, vertical, M.O.V.	10 10
2½ h.p.	KERRY	9 9
2 h.p.	MINERVA	5 15
3½ h.p.	1904 REX	
3½ h.p.	AUTO-MOTOR	16 0

We have a few Brand-new 1907 Magneto Triumphs on hand at £41. Exchange arranged.

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MOTOR BICYCLES FOR SALE.

2¾ h.p. Kerry, good running order, reliable, long handle-bars, switch, two accumulators, Palmer back (new), spare valves, plugs, horn, girder forks, low seat, owner bought higher power; will accept best cash offer; also 26 by 2¼ non-skid, steel studs, new, 15s.; F.N. carburetter, 8s. 6d.—C.S., 587, Seven Sisters Road, Tottenham.

SPECIAL 5½ h.p. Twin G.B., to be sold through ill-health, new condition, guaranteed perfect, not run 500 miles, magneto, spring forks, control, spark, gas, air magneto cut-out, exhaust lift, all on handle-bars, instantaneous stand, strong carrier, Whittle belt, Autoclipse lamp, extra large separate generator, large horn, foot pump, good kit of tools and parts; cost in October, 1907, over £70, accept £42 cash, no offers.—Truefitt, Newborough, Scarborough.

TELEGRAM, Sir.—Rex de Luxe (unridden), black finish, £35; shop-soiled 3½ h.p. 1907 Rex, spring forks, magnificent mount, £19 19s.; twin Rex, £22; 3 h.p. M.M.C., £13; twin Werner, £19 19s.; 3½ h.p. Hobart, £14; 3 h.p. Givaudan, £14 10s.; 3 h.p. Clarendon, £13 10s.; 2¾ h.p. De Dion, £12 10s.; 7 h.p. Peugeot, £30, nearly new; 3 h.p. Rover, £13 10s.; 4 h.p. Antoine, £16 10s.; 3½ h.p. magneto Simms, £17 10s.; 3½ h.p. Jap, £18; 4 h.p. Jap, £23, torpedo; twin Antoine, £25; 2 h.p. Minerva, £7; 2 h.p. Quadrant, £8; 2 h.p. Standard, £8; 2 h.p. Werner £6 10s.; 2½ h.p. Kerry, £9; 2¾ h.p. Antoine, £9 10s.; 2 h.p. magneto Simms, £9; 3 h.p. Hobart, £10; 3 h.p. Rover, £13 10s.; 3½ h.p. Rex, £9 10s.; spring fork Rex, £14 10s.; 5 h.p. Rex, £18; 3½ h.p. Kerry, £18 10s.; 2¾ h.p. F.N., £14 10s.; 2¾ h.p. De Dion, £14 10s.; 3½ h.p. N.S.U., magneto, spring forks £24; Rex de Luxe, £29; twin Werner, £16; twin N.S.U., £25; 3 h.p. M.M.C., £13; 3 h.p. Humber, £10 10s.; 3½ h.p. Minerva, £18 10s.; soiled, £23; twin Alcyon, £22; 1¾ h.p. Minerva, £4 10s.; 1¾ h.p. Quadrant, £6; 3 h.p. Lloyds, £14 10s.; 2½ h.p. Excelsior, £6; 4 h.p. Coronet, £16; cash, exchange or extended payments.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

TRICARS FOR SALE.

HALIFAX.—5 h.p. Humber tricar, two speeds, open frame, wheel steering, almost as new; £45.

HALIFAX.—Quadrant Carette, 6 h.p., open frame, wheel steering, two speeds, coach-built, latest model, £35, cost £100.

HALIFAX. — 6 h.p. twin-cylinder Advance tricar, wheel steering, only used for trials; bucket seat; £35.

HALIFAX.—5½ h.p. Rex Triette, spring frame, free engine clutch, very reliable; £29 10s.—Below.

HALIFAX.—4 h.p. Rex tricar, Phœnix two-speed gear, good running order; £21.

HALIFAX.—4½ h.p. Rex tricar, two speeds, free engine, very good order and condition; £21.

HALIFAX. — 4½ h.p., water-cooled Wolf, two speeds; £37 10s.; condition almost new.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built, four-speed gear; £37 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

£45.—8 h.p. Tricar, Rexette, perfect condition, lamps, tools.—12, Cambridge Street, Sheffield.

VERY Smart, reliable, fast, twin tricar; sacrifice £25.—47, Camden Grove, Peckham.

5 h.p. Twin Kerry, open frame, wheel steering, two-speed, side levers, Brooks' bucket seat; £25.—Holmes, Mill Hill, Cowes.

QUADRANT Carette, 6 h.p., two cylinders, front seat detachable, making splendid runabout; lamps, tools, etc., £45; appointment.—Spensley, Chertsey, Surrey.

6 h.p. Fafnir Twin, water-cooled, Chater-Lea frame, gear and bearings, three speeds and reverse, coach-built, wheel steering, Bowden control, Palmer cord tyres, good condition; £55, cost £115; trial by appointment.—George Glenny, Brewery, Barking.

TRICARS FOR SALE.

5 h.p. Riley Tricar, water-cooled, two speeds, car tyres; £32.—Below.

TWO-SPEED Tricar, 3½ h.p. Quadrant engine, Phœnix gear, belt drive, grand goer; £19.—Below.

3½ h.p. Minerva Tricar, M.O.V., Longuemare carburetter, fan-cooled; £18. —Farrar, Square Road, Halifax.

5 h.p. Bollee Tricar, three speeds, two bucket seats; bargain, £9. — 98, Potternewton Lane, Leeds.

QUADRANT Carette, 6 h.p., latest model, condition as new, car tyres, lamps, spares; £45.—Parry, Powick, Worcester.

C.I.E. Tricar, 5 h.p. Sarolea, Phelon and Moore's two-speed gear, coach-built, splendid condition; £33.—Spencer, 4, Nelson Square, Burnley.

TRICAR, 3½ h.p., Humber, convertible to single. M. and F. forecar, cane body, good condition; £17, bargain.—M., 39, Southcroft Road, Tooting.

TRICAR, 4½ h.p. Stevens engine, Whittle belt, Longuemare, 2½in. tyres, condition as new; £30, or offer.—Write for particulars, 22, Carfax, Horsham.

PHŒNIX, Genuine, 3½ h.p., two speeds, tricar, excellent condition; offers wanted, or exchange for magneto bike, Triumph preferred.—71, Stoke Newington Road, N.

4½ h.p. White and Poppe, water-cooled, coach-built tricar, two speeds, large clutch, Palmer cords; trial run; £45, cost double. — Fairview, Springfield Road, Wallington.

PEARSON'S Tricar, 4½ h.p., Aster engine, water-cooled, spring frame, Oppermann three-speed, chain drive, coach-built; £30. — Wingfield, 112, New King's Road, Fulham.

KERRY-ABINGDON Tricar, 5-6 h.p., two speeds and free engine, Peter-Union tyres, studded back, handle steering, side levers, very little used; £30.—Haynes, Enfield Highway.

3½ h.p. Humber Tricar, very light, Phelon and Moore two-speed, re-bored and new piston in May last; can be seen by appointment; £25, or offer.—Haylor, 127, Walm Lane, Cricklewood.

5-6 h.p. Beeston Humber Tricar, two speeds, free engine, coach-built, new car tyres, water-cooling and everything perfect; price £38, excellent condition. — Lee, Central Buildings, Liverpool.

TRICAR, Chater-Lea, nearly new, Fafnir engine, 3½ h.p., large clutch, footbrakes, two speeds, handle starting Dunlops; £20, exchange for motor bike and cash.—1, Church Street, Edmonton, N.

BEESTON Humber, 4½ h.p., water-cooled, two speeds, coach-built, new condition, non-skid, new spare tyres, finest accessories; exceptional bargain, £40. — Randall, Clone, Hampton-on-Thames.

8 to 10 h.p. Twin Antoine Tricar, Dunlop tyres, upholstered green, red lined, splendid condition, very fast; also 3½ h.p. De Dion engine; owner bought car. — Philbrock, 611, Kingston Road, Raynes Park.

CENTURY, 6½ h.p., Aster engine, water-cooled, Michelin car tyres, unscratched, two speeds, Renolds silent chains, upholstered red morocco, quantity spares; £25.—Howards, Cycle and Motor Agents, Bakewell.

£28.—Tricar, 3½ h.p., Kerry engine, two-speed gear, coach-built seat, Palmer cord tyres, spares, accessories, etc., all in splendid condition; any examination. —Owner, c/o Garage, opposite South Ealing Station, W.

5-6 h.p. Twin Rex Triette, in good order, and condition equal to new, Acetyphote lamp, horn, stand, new extra footboards and toolbox; £35, or nearest; sole reason selling, buying car.—Ashley, The Ferns, Foleshill Road, Coventry.

QUADRANT, 6 h.p., coach-built, three speeds, Bowden epicyclic gear, chain drive, engines coupled, new back tyre, good condition, just overhauled; £32 10s., or exchange motor cycle and cash.—Rodway, Horsefair, Birmingham.

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This is an electrically operated horn, as now used on all up-to-date cars. It gives a deep continuous note, audible at a great distance, and is the most efficient warning yet introduced.

Electric Buzzer, with press button and wiring, plated finish, ready for attachment to any ordinary horn **8/6.**,

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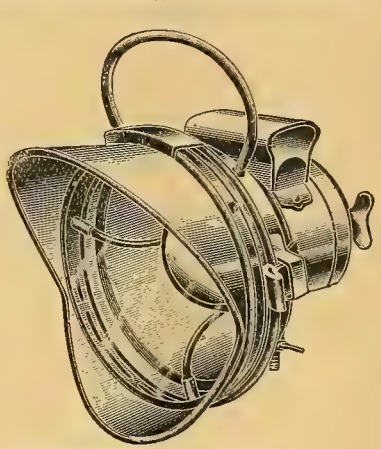

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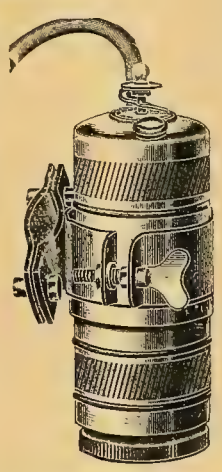

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5 h.p. Water-cooled Rexette Tricar, open frame, wheel steering, two speeds, handle starting, good running order; £29; take good motor cycle in part payment.—The Leeds Motor Exchange, Dock Street, Leeds.

5 h.p. Rexette Tricar, live frame, two speeds, open frame, water-cooled, recently thoroughly overhauled, and the condition is now as new; £30; guaranteed.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

FORECAR, Trimo, in very good condition, coach-built, Bowden foot band brakes, enamelled chocolate, Clincher tyres (good), large apron to suit; original cost £22, £6, or nearest offer.—Harrison, 8, Vesey Street, Birmingham.

4½ h.p. Humber Tricar, chain drive, water-cooled, free engine and clutch, handle start, spray carburetter, spring seat-pillar, in thorough going order; £27; bought car; want room. — Humber, 34, Spital Street, London, E.

REXETTE, 5 h.p., two speeds, wheel steering, just been thoroughly overhauled and renewed, tyres perfect, new Brooks band and Riche tube on back, new accumulator, lamps, and horn; £40. —Patterson, 13, George Street, Edinburgh.

SINGER Tricar, 3½ h.p., belt driven, magneto, aluminium coach-built body, two speeds, free engine, fan-cooled, electric lights, and other refinements, perfect condition; up-to-date cycle taken in part exchange; offers invited.—Apply, Raab, 2, Polperro Mansions, Lyncroft Gardens, Hampstead.

REXETTE, 8-10 h.p., twin-cylinder, new November, 1906; cost £135; seats three, Napier green, red leather upholstered, silver plated fittings, all copper radiator, good condition, irreversible steering, new non-skids on all wheels; any reasonable trial run given; £48, or nearest offer.—Milburn, Dalton, Croft-on-Tees.

MAGNIFICENT Riley Tricar, 9 h.p., 1907 pattern, carries two passengers, complete with every fitment and many accessories, heavy Dunlop tyres, acetylene car lamps, three accumulators, spare tubes, valves, chains, etc., and complete outfit of tools; open to any trial or examination; £78, no offers. — Archibald Briggs, Astleylea, Carnoustie.

STAMFORD HILL.—5 h.p. w.c. Oppermann three-speed tricar, overhauled, plated, and enamelled like new, £35; 4½ h.p. two-speed Phœnix Trimo, overhauled, plated, and enamelled like new, £32 10s.; 4½ h.p. Kelecom, £22; 3½ h.p. M.M.C., £10; 3½ h.p. Rex, Millford front, £15; all bargains and guaranteed; trials. We live on a hill.—128, High Road, Tottenham.

ANY Trial, mountains or plains, of 6-8 h.p. tricar, built by Panhards, two cylinders, three speeds and reverse, Krebs carburetter, automatic lubrication, car tyres, handsome coachwork by Salmons, of Newport Pagnell, beautifully upholstered and sprung, colour dark green, plated fittings; cost £150, best offer over £70 accepted.—H., 57, Coventry Road, Ilford.

SIDECARS AND FORECARS.

MILLFORD Forecar, in good condition, wicker chair, upholstered; £7. — John Siddons, Oundle.

RIGID Sidecar, left side, 26in. Clincher tyre; £4 4s.—Eagles and Co., High Street, Acton, W.

RIGID Sidecar, 26in. wheel, wicker body, as new; £3 15s.—8, Barrett Street, Manchester Square, W.

MONTGOMERY latest pattern sidecar, nearly new, good condition; £8 10s.—Dobson, Yarm, Yorks.

KERRY Forecarriage, with sidestays; £4 15s., cost 16 guineas, upholstered green.—Vickery, Ealing Road, W.

FIVE Lovely Sidecars, some quite new, 26 by 28in. wheels; cheap for cash. —Farrar, Square Road, Halifax.

STAMFORD HILL.—Have a sidecar on approval and judge for yourself. None better whatever you pay. Our price £4 18s. 6d., complete. Please order early.—128, High Road, Tottenham.

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BOOTH. — Continentals, Continentals, Continentals, as received from makers. List free on application.

BOOTH.—Tyres, 26 by 2, 11s. 6d.; tyres, 26 by 2½, 12s. 6d.; heavy Clincher pattern treads.

BOOTH. — Your old cover and tube taken in payment for new tyres. List free.

BOOTH.—Inner tubes, 6s. to 7s. 6d., all sizes, makers' guarantee.—Coronet Works, Wade Street, Halifax.

INNER Tubes.—Quantity of 26 by 2½in. motor cycle tubes, second-hand, but in perfect condition; 7s. 6d., cash with order.—Phœnix Motors, Ltd., Blundell Street, Caledonian Road, N.

24 by 2½ Peter-Union Covers, 15s.; 24 by 2¾ Peter-Union covers, 15s.; 26 by 2 guaranteed covers, 15s.; 26 by 2¼ guaranteed covers, 15s.; 26 by 2½ guaranteed covers, 15s.; 28 by 2 guaranteed covers, 15s.; 28 by 2¼ guaranteed covers, 15s.; 28 by 2½ guaranteed covers, 15s.; 28 by 2½ wired-on covers, 15s. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

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BELLENGER will tune up your machine to give full power; moderate charges.—Queen's Buildings, Old Bailey.

ACCUMULATORS, magnetos, repaired; lowest prices; work guaranteed.—Sharpe, 336, Gray's Inn Road, King's Cross.

RELIABLE Repairs. — Cylinders rebored, new pistons, complete, 15s.—Gas Engine and Motor Works, Forest Hill, S.E.

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REPAIRS and Overhauling. — We have the finest repair works in London for motor cycles, with up-to-date machinery; estimates free; new cylinders for any make of engine, pulleys, valves, gears, and all replacements; send for our new Booklets, with prices.—Laystall Motor Engineering Works, 27 and 29, Laystall Street, Rosebery Avenue, E.C.

ENGINES Re-bushed throughout from £1; cylinders re-bored from 5s.; pistons supplied new from 7s. 6d.; rings from 9d.; valves, exhaust, from 2s. 6d.; inlets, from 1s. 6d.; pulleys, for any motor, Triumph, Brown, Fafnir, 4s. 9d.; Peugeots, 5s. 6d.; Rex, Antoine, Kelecom, 5s. 9d.; De Dion, M.M.C., 6s. 9d.; above 4½in. diameter, 9d extra; any part made to pattern at lowest prices, accuracy guaranteed.—Tufnell and Co., Lightning Motor Works, Leytonstone.

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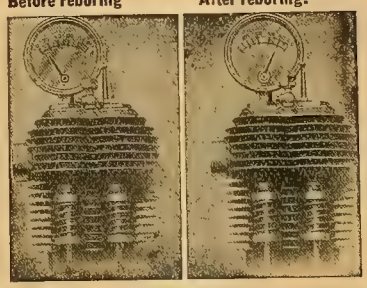

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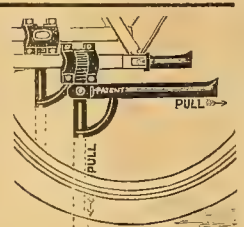

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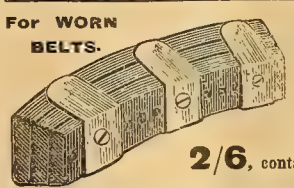

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ERIC S. MYERS,
"NO WORRY DEPOT,"
BRADFORD.
Also six 1907 TRIUMPHS, almost new, to be cleared cheap.

EXCHANGE.

EXCHANGE Unito Couplings for anything useful, or sell 15s.—Greenwood, Keswick.

COIL, plain, perfect, for 7ft. 6in. ⅜in. belt, good condition. — Attree, Myrtleberry, Lynmouth.

EXCHANGE, Discodeon and thirty records; cost £9, for motor cycle. — Pownall, Prescot, Lancs.

EXCHANGE 2½ h.p. Royal Enfield-Minerva, perfect, for gent's bicycle and cash.—Masterson, Rathdowney.

4½ h.p. Tricar, 4 h.p. bike, 2¾ h.p. tricycle, for good car.—Bedford, 3, Bowling Green Street, Sheffield.

3 h.p. Bradbury, also 3 h.p. Humber, free engine, for 3½ h.p., 1908. — Dunstan, 155, Bentley Road, Doncaster.

WE Exchange your present mount for any make of new or second-hand. —Maude's, Powell Street, Halifax.

1½ h.p. Crossley Gas engine, complete, like new with shafting; £12 10s., or exchange.—Holmes, Mill Hill, Cowes.

SPLENDID Long Fur Motor Coat, would be exchanged for motor cycle.—Address, 93, Avenue Road, Southampton.

2¾ h.p. Werner, grand condition, with cash, for higher power, Minerva preferred.—Meredith, Over, Winsford.

WE Will Exchange your old machine for any new one you desire on liberal terms.—128, High Road, Tottenham.

EXCHANGE 1908 Twin Vindec, for 1908 3½ h.p. Vindec, two-speed, or good tricar.—No. 9,243, *The Motor Cycle* Offices, Coventry.

2½ h.p. Wearwell, good condition, for road racer and cash, or sell £7 10s.—Coulson, 11, Halcombe Street, Hoxton, London.

GIVE new lady's cycle, free-wheel, two brakes, all accessories, and little cash for motor bicycle. — 114, Rutland Street, Stepney.

WANTED, Fafnir Two-speed gear, for 3½ h.p. engine, exchange Eadie push bike, wood lathe, etc.—185, Urmston Lane, Stretford, Lancs.

EXCHANGE, for magneto motor cycle, Broadwood's celebrated five-octave pianette and cash, or sell for £4 10s. — Wakefield, Bildeston, Suffolk.

EXCHANGE, Singer back wheel, with engine, tyre, and tube, magneto, complete, less carburetter, for good 2 to 3 h.p. engine.—A. Moyse, Kessingland.

NEW Rex de Luxe, black finish, twin, magneto, Roc clutch, twin wheels, for single magneto Rex and £15 15s.—Box 9,183, *The Motor Cycle* Offices, Coventry.

HALIFAX.—What do you want? We exchange motor cycles, tricars, cars, or 1908 Rex and N.S.U. models; list on application.—16, Westgate, Halifax.

EXCHANGE 2¾ h.p. De Dion motor cycle, Chater-Lea frame, in good running order, for push cycle and cash, or anything useful.—Barwell, Privett, Alton, Hants.

EXCHANGE Clyde magneto and Griffon, both 2¾ h.p., excellent condition, for new 1908 Triumph, Vindec; balance in cash.—Motor Depot, Green Street, Cambridge.

EXCHANGE, Gent's Swift and lady's St. Mungo cycles, good as new, and cash, for good modern powerful motor bike, with side or forecarriage, in perfect condition.—Taylor, 76, Goldhawk Road, W.

EXCHANGE, complete course of electrical engineering correspondence instruction, value £13 13s., and Thornton-Pickard half-plate camera, triple extension, and three dark slides, value £4 10s., and small cash, for 3½ h.p. Rex, or other good make.—9,238, *The Motor Cycle* Offices, Coventry.

2¼ h.p. Quadrant Engine and Carburetter, for pair of wheels with tyres, complete; offers for 2¾ h.p. Quadrant head, inlet, elbow throttle, and valves, complete, also piston, also piston and exhaust valves for 2½ h.p. Zedel.—Cox, Minster, Witney.

EXCHANGE.

EXCHANGE Lady's and gent's cycle and cash for motor cycle, 2½ h.p. preferred.—Whitehorn, 19, Brassey Road, Winchester.

EXCHANGE 80 by 80 engine, magneto, etc., new June, for 5-6 h.p. twin, cash adjustment.—Bickington, 176, Mitcham Road, Tooting.

26 by 2¼in. Shaw Non-skid Tyre and Tube, nearly new, exchange for Palmer cover, toolbag; sell 25s., or offers.—E. Howell, Tisbury, Wilts.

3½ h.p. M.M.C. Cycle, Longuemare, Pressted coil, Clincher tyres, good condition; £16, or push cycle and cash.—Elliott, 63, Palmerston Road, Walthamstow.

EXCHANGE for good motor cycle 3½ h.p., in good running order, gent's cycle, new, 24in. frame, also Lambert typewriter, 7 guineas.—W. H. Kent, Elmsleigh, Cherry Orchard, Staines.

EXCHANGE for good motor cycle or tricar, new high-class furniture of any description, direct from the works.—Furniture Manufacturer, 3-5, New Norfolk Street, Shoreditch, London.

EXCHANGE 6 h.p. two-cylinder Decauville two-seated car, wheel steering, three speeds, new gears, differential, and upholstery, for motor cycle or tricar and cash.—52, Perry Hill, Catford.

ARIEL Coupler, also 26in. by 2⅜in. Continental butt-ended inner tube, with valve, complete, both brand new, for lightweight bicycle, 20in. frame, good make and condition essential.—Cooper, 4, Southampton Row, W.C.

3 h.p. Kelecom Motor Cycle, spray carburetter, new belt, just been reenamelled and plated, wants slight adjustments; exchange for lightweight, or sell cheap.—Strong, jun., S. Acton, W.

3½ h.p. Clarendon, brand new and unridden, latest low model, guaranteed perfect and faultless, and three days' trial allowed, exceptional reliable and handsome machine, with separate generator lamp, horn, bag, and tools; accept £18 and good cycle, cost £41.—Sheldon House, Queen Victoria Road, Coventry.

WANTED.

WANTED, 2½ h.p. Jap Engine, inclined.—138, Ainslie Street, Barrow.

WANTED, 2½ h.p. vertical engine, sound and cheap.—253, Bath Road, Hounslow.

FAFNIR Two-speed Gear for 3½ h.p. engine.—185, Urmston Lane, Stretford, Lancs.

WANTED, Spindle for Lloyd's free engine clutch; quote price.—Speirs, Grocer, Leven.

WANTED, 5-6 h.p. 1907 Rex, no fancy price entertained.—Green, High Road, Woodford Wells.

FRONT Wheel, for 1903 or 1904 Rex motor cycle; exchange, or cash.—Maude's, Powell Street, Halifax.

WANTED, Pair 26 by 2½ tyres and tubes; approval.—62, Colvestone Crescent, Dalston, London.

WASTE Indiarubber, every description; highest prices paid.—Union Rubber Co., Calls, Leeds.

WANTED, Screw-cutting Lathe, in exchange for motor cycle or cash.—128, High Road, Tottenham.

MOTOR Cycle Wanted, Triumph preferred, also tricar, cash.—Motorist, 14, Pelham Street, Brighton.

MONTGOMERY Sidecar, Modele de Luxe preferred, for cash.—"K.," 26a, Morningside Drive, Edinburgh.

HALIFAX.—High-class machines purchased for prompt cash.—Halifax Motor Exchange, Westgate, Halifax.

3½ h.p., magneto, good make, not earlier than 1906; spot cash.—Box 9,240, *The Motor Cycle* Offices, Coventry.

WANTED, Autoclipse, or similar, separate generator lamp, also loud horn for motor cycle.—Fitch, 76, Grantham Road, Clapham.

Motor Cyclists ride in Comfort

Waterproof Overalls, Coats, Mackintoshes, Capes, etc., in great variety. An illustrated catalogue free on application. Holland Dust Coats Overalls, Gloves, Goggles, etc., in fact, everything a Motor Cyclist Requires.

TAILOR AND **R. PALMER,** BREECHES MAKER,
BEST VALUE, FIT, and STYLE OBTAINABLE
18/6

Lace or button knees, split falls or fly fronts. Cut same as hunting breeches. Very clean at knees. Specially designed for comfort in the saddle. Can be worn for cycling, walking, golfing, or any outdoor sport. **MATERIALS:** Real Scotch and Irish Tweeds, Cords, etc. These breeches are not "factory made," but made in sanitary workshops by experienced "English" breeches makers.

PUTTEE LEGGINGS, 12/6.

Send for Patterns and Self-measurement form. Free on receipt of Postcard.

R. PALMER,
4, Kingsway, Twickenham London, S.W
SUITS from 45s. TROUSERS from 12s. 6d.
Telegrams: "Palmer, Tailor, Twickenham."
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Terms—Cash with Order.

No More Duds or Crocks

We guarantee the following machines as sound.

3½ h.p. Twin Werner, Spring Forks, **£18 10s.**
5½ h.p. 1907 Twin N.S.U., Two-speed, **£40 0s.**
3½ h.p. 1907 Triumph, as new, **£35 0s.**
Two 3 h.p. Magneto N.S.U's., **£24 0s.**

Lightweight N.S.U'.s, and Duplex Motocyclettes stocked. Agents for N.S.U.'s, Quadrants, and Vindec Specials.

THE MOTOR MART, Union St., Brighton.

UNSOLICITED TESTIMONIAL

from Mr John Morris, 40, Blackburn Road, Bolton, Feb. 3rd, who writes: "Will you please send a starting handle for the Mabon free-engine clutch I had from you some months back. I was out yesterday and lost the one I had. I have fitted a side-carriage to my machine. I must say your clutch is a treat. I and a 12-stone passenger have been on the worst roads and hills about here. The hills we had to deal with yesterday, had I had a fixed pulley, we could never have landed to the top. I have never had a bit of trouble with same since I fitted it, and I can safely say it is the best and cheapest bit of workmanship of its kind I have ever seen. When in traffic it is simply grand to sit in saddle and pull up, then start off without dismounting. You can make what use you like of this letter.—Wishing you every success, I am, yours, etc., J. MORRIS."

Send for particulars.

MABON MOTOR WORKS,
54, HIGH RD., NORTH FINCHLEY, LONDON, N.

WANTED.

OPEN Frame Tricar; exchange 4 h.p. Rover tricar and 2¾ h.p.—9,241, *The Motor Cycle* Offices, Coventry.

2½ h.p. Jap Engine wanted, also twin-cylinder engine, in new or good condition.—128, High Road, Tottenham.

WANTED, twin, good make, magneto preferred, exchange 3½ h.p. Rover and cash; photo.—Browner, Lodge Lane, Liverpool.

WANTED, for cash, motor cycle, magneto, Triumph or Vindec twin preferred.—8, Barrett Street, Manchester Square, W.

TRICARS and Motor Cycles, any make, in part payment for 6 h.p. Rover cars at £130.—Davis and Son, Moseley, Birmingham.

WANTED, sidecars, any quantity; will give in exchange new £10 10s. gents' pedal cycles, guaranteed twelve months.—Below.

WANTED, good modern motor cycles; cash waiting if quality and prices are right.—Farrar, Square Road, Halifax.

100 Second-hand Motor Cycles required in part exchange for new 1908 models of leading makes.—Wauchope's, 9, Shoe Lane, London.

WANTED, motor cycle, good make, magneto, for cash; send full particulars.—Box L1,706, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

WANTED, Second-hand Twin V air-cooled engine, about 5 h.p., and coach-built forecar body, with springs; cheap for cash.—Lovelace, Stalbridge, Dorset.

WANTED, 3½ h.p. Brown, 1907, magneto, for 200-year-old 'cello, rich and mellow tone, and £16 cash; approval.—F. Rogers, 13, Clavering Road, Manor Park, E.

GOOD Pair Tricar Lamps, oil or acetylene, also tool box for front of quadcar, with collapsable seat, best; cheap, reliable.—M. Horner, 28, Green Street, London, W.

GOOD Twin or Four-cylinder Motor Bicycle, magneto, wanted, in exchange for 3½ h.p. Sunbeam, Mabley, two-seated car, running order.—Muller, Hutton, Guisborough, Yorks.

SOCIABLE-SEATED Tricar, 6 h.p., three-speed and reverse, magneto ignition preferred; cheap for cash, and motor bicycle.—Particulars to Lacey, 77, High Street, Staines.

ROC Wanted, 4 h.p., low, and cash, for a two-seater Humberette, two speeds forward and reverse, or sell cheap, good condition, lamps.—9,249, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

WANTED, tricar, bucket seats, free engine, magneto ignition, water-cooled, must be in perfect order, with accessories, and open to expert examination; full particulars; £20-£25.—Douglas Wood, Steyning, Sussex.

WANTED, to purchase 4½ h.p. four-cylinder F.N., lightweight, 3 h.p., 1906 Triumph, 5 h.p. Vindec Special, Motosacoche, Bat, 6 h.p., or over.—Wauchope's, 9, Shoe Lane, London, E.C.

CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card.—Address, "The Cycle and Motor Trades' Review" Offices, Coventry.

CATALOGUES are wanted from the following motor cycle firms: F.N., Brown, Chater-Lea, Xl'all, Zenith, Service Co., Gamage, Fairy Motors, Motosacoche, Moto Reve, N.S.U., J.A.P., Vindec; other makers of motor cycles and accessories are also requested to send their catalogues.—G. M. Bather, c/o Pathim and Co., Chandkira, Sylhet, India.

WANTED, Engine about 90 by 100, a.c., light, to buy, or exchange 84 by 80 M.M.C., specially made, rare chance, together, all attached, no fitting, only wants bolting to inclined frame, strong clips, footrests, carburetter, large e. box, good epicyclic gear, handle, clutch, also p. coil; £12; wanted, sidecar, exchange upholstered trailer and cash.—C. H. Smith, Cox Street West, Birmingham.

THE MOTOR CYCLE

Vol. 6. No. 258. March 4, 1908.

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The Affiliation of Motor Cyclists.

IN our "Current Chat" columns last week we drew attention to a circular letter regarding the terms of the agreement between the R.A.C. and M.U., a copy of which had been sent to all motor cycle clubs affiliated jointly to the A.C.U. and M.U. The circular letter pointed out, as we explained at the time, that, in the opinion of the M.U., it is uncertain whether the A.C.U. comes within the scope of the dissolution agreement made between the R.A.C. and M.U., by which the R.A.C. was able to give notice to terminate the agreement and sever its connection with the Motor Union. To a great number of our readers these more or less legal formalities are difficult to understand unless the inner workings of these associations are fairly well known. It will, therefore, be well to explain that some years ago the then A.C.G.B.I. (which was the pioneer organisation in connection with the automobile movement) decided to form a legal branch, to be called the Motor Union. To this branch was delegated the whole of the legal work of the A.C.G.B.I., and an agreement was drawn up by which the A.C.G.B.I. could at any time give notice to the M.U. to discontinue the arrangement made. It also delegated about the same time the control of motor cycling to an organisation which it created and called the Auto Cycle Club, since transformed in name to the Auto Cycle Union. Circumstances arose which caused the A.C.G.B.I. (transformed in name to the R.A.C.) to give the necessary notice cancelling the agreement. The A.C.U. concluded that it also had severed its connection with the M.U., for the reason that it was understood that the A.C.U. was included in the special agreement between the R.A.C. and M.U. This is also the interpretation put upon the terms of the agreement by the R.A.C. The M.U. is, however, doubtful if the A.C.U. does come within the scope of the agreement, but it wishes motor cyclists to know, and especially those who are members of clubs jointly affiliated to the A.C.U. and M.U. (if any such exist), that if it is agreed that the A.C.U. does come within the scope of this agreement, it (the M.U.) will at once commence to organise a department to look after the special interests of motor cyclists. The reason we have inserted the words "if any such exist" in parentheses is because the clubs either remain jointly affiliated to the A.C.U. and M.U. until December 31st, 1908, or they do not. After all, we presume it is a question of payment of fees. If a club does not wish to remain jointly affiliated it will, when renewing the payment of the affiliation fees, ask to sign a fresh agreement with the A.C.U. alone or wait until the M.U. publishes details of its scheme.

The situation is a regrettable one, because we do not think there is room for more than one live motor cycle association, and coming at this time it is calculated to bewilder the officials of local bodies, who have probably explained all the advantages of affiliation to the A.C.U to their members and obtained their sanction for the payment of the fees.

As far as the R.A.C. is concerned, a list of clubs which remain affiliated to both the R.A.C. and M.U. for 1908 is published in the current issue of the *Club Journal*, and among them are several which have not sent official intimation to the R.A.C. of their decision, and, to quote the *Club Journal*, "the existing agreement therefore continues automatically." We presume that the existing agreement continues until such time as the club does come to a decision, when they can either remain affiliated to both or join

either, whichever they prefer. If this is so, the same ruling applies to motor cycle clubs affiliated to the A.C.U. and M.U. under the old agreement.

But what motor cycle clubs should consider is the question of a division of fees. Under the old agreement the fees were divided between the A.C.U. and M.U., and in the case of clubs which have sent no official intimation to the A.C.U. of their decision, those fees will again be divided, but if they at once give notice to the A.C.U. that they intend to affiliate to that body the fees go to swell the coffers of a separate organisation for motor cyclists, which we have specially urged for all time. The question for motor cyclists to decide is, Shall we allow the affiliation fees to be divided among two bodies, both doing the same work, or shall we devote the whole of the fees to supporting the motor cyclists' organisation, the A.C.U.?

The A.C.U. claims to be able to do all that the M.U. has done for motor cyclists; consequently we utterly fail to see any necessity for another organisation except in the case of those mixed clubs which have thrown in their lot with the M.U., and want the motor cycle members of their club to participate in the same advantages as the car members at a lower fee.

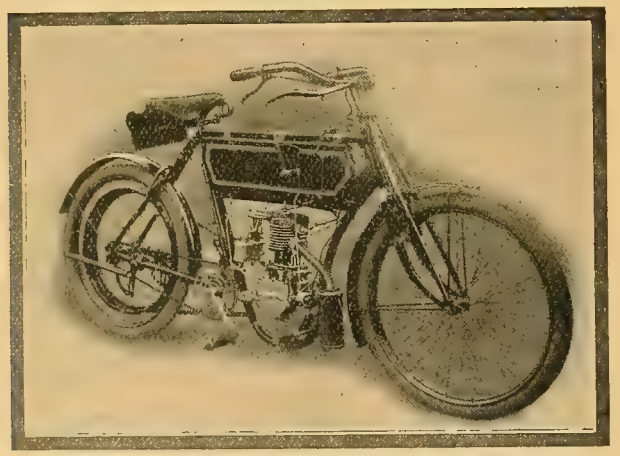
Even then we should urge upon mixed clubs to join the A.C.U. as far as their motor cycle members are concerned, because it is only by rallying round the association specially organised to protect their interests that such a body can continue to exist.

Moreover, mere existence is not all. The Union must be powerful to be of any service to the pastime, *i.e.*, more powerful and more important than it is now, and strength can only be obtained by unity. Half of the motor cyclists in the A.C.U. and the other half in the M.U. will not strengthen the motor cyclist's position. They should all be in one or the other.

We also hope to see a strong scheme placed on foot by the A.C.U. to associate unattached motor cyclists on the lines of the R.A.C. association scheme. We have reason to believe that this matter is receiving attention, but there is no time like the present, and the sooner the details of the scheme are made known the less chance there will be for other organisations to step in and secure the motor cyclists' support.

A LOW-PRICED MOTOR BICYCLE.

KIRBY and Edwards, Broadgate, Lincoln, an old-standing firm of cycle manufacturers, and who have been making motor cycles for some years, have introduced a new model of considerable merit. Realising that many people have only a limited amount to spend on a motor cycle, they have laid them-



The Lincoln-Elk Motor Bicycle, made by Kirby and Edwards.

selves out to supply a motor bicycle at the price until recently charged for a high class pedal bicycle. The machine is of 3 h.p., and the engine is placed low down in a special cradle, an extra loop being made in the frame to ensure additional strength. The dimensions of the cylinder are 79 mm. × 79 mm., and the engine gives off sufficient power to enable all the hills in Lincoln to be surmounted by local riders who use them. The entire machine, engine, and frame, is made on the premises before mentioned. The wipe contact is driven by a worm gear in the right hand side of the crank case, and the same gear works the exhaust valve cam, the result being that the engine is compact. The inlet valve is automatically operated, and accumulator ignition, with a two-way switch, is fitted as a standard. The transmission is by a ⅞in. Stanley-Dermatine belt and among other standard fitments are Palmer tyres on 26in. wheels, Brown and Barlow carburetter, Bassée Michel trembler coil, and Bluemel's twenty ampère hour accumulator. The machine is stated to be able to attain a speed of about forty miles an hour, and to mount an ordinary hill without pedal assistance. It is the work of an old-established firm, well known in Lincoln, and with such a machine at the hitherto unheard of price of £19 10s. there should be several recruits to the pastime.

AN INGENIOUS LITTLE SPANNER.

The Birmingham Small Arms Co. have placed on the market a novel form of adjustable spanner, which will be found useful in many ways to the motor cyclist. A mere downward pressure of the thumb releases the sliding portions of the jaw, which can then be set to the required width. A series of fine serrations on the back of the spanner in combination with an internal spring in the jaw ensures it remaining quite rigid when power is applied to the nut. It is a handy little tool for the pocket or toolbag, and takes nuts up to ¾ across the face.

Readers are asked to note that Phänomen Motor have removed from 332b, Goswell Road, to 49, King Square, President Street, Goswell Road.

Minerva Motors, Ltd., 40, Holborn Viaduct, E.C. advise us that their complete 1908 catalogue is now ready, and will be forwarded to readers on application. A specimen copy we have before us contains illustrations of the principal working parts of Minerva engines, with full description, also a sectional drawing of the new Minerva G. and A. carburetter. The principle upon which this automatic carburetter works has been previously referred to in our pages, a series of steel balls being provided for controlling the supply of extra air, which are lifted more or less from their seatings according to the speed and suction of the engine.

First Motor Cycle Race at Brooklands.

NEVER before in its brief existence has the famous motor track at Weybridge presented such a stirring and businesslike appearance as on Tuesday in last week. On that occasion the first motor cycle contest on the Brooklands course took place, when a really excellent performance was made by Mr. W. G. McMinnies on a 3½ h.p. Triumph motor bicycle.

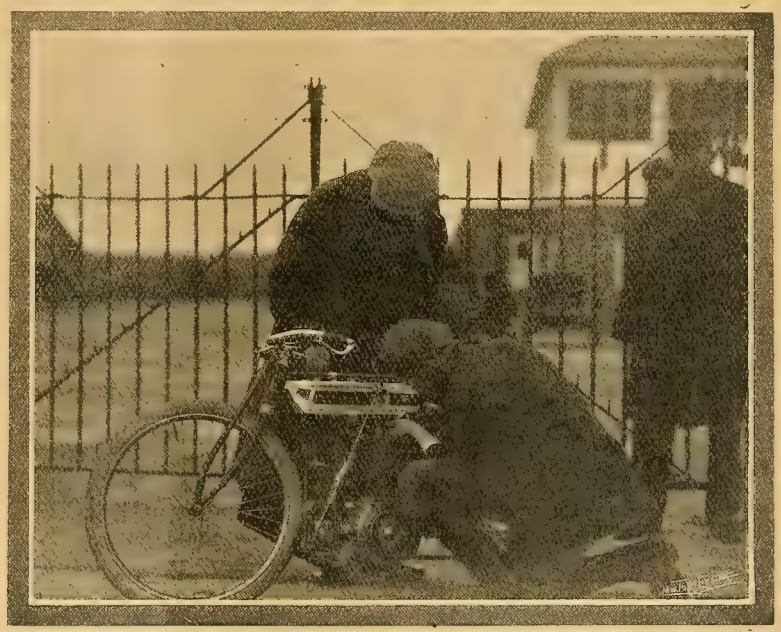
It is true that several cars were also racing on the track—for instance, a new six-cylinder Humber and a 100 h.p. Renault, and a few other little things of that sort—but, taking it all round, we must admit as onlookers that *the* feature of the day was the *début* of the two-wheeler. Almost as soon as the sun arose, two enterprising motor cyclists aroused the neighbourhood with the rapid reverberations of their machines as they raced round and round the track at terrific speeds. Clad in thick garments and well be-goggled and helmeted, the intrepid riders flashed round the great motordrome at furious speed, learning the intricacies of banking and experiencing the peculiar feeling as one swoops down again on to the level.

"By George!" said a bystander; "they have got the fever badly."

And meanwhile Mr. Rodakowski smiled upon the enthusiasts, willingly agreeing to their suggestions, and taking as much interest in the matter as if he himself were riding.

"Truly, motor cycling makes us wondrous kind," sang a poet once—not Shakespeare—and that he was right this occasion showed.

As the day wore on, spectators trickled in, discovering in some remarkable manner that a great event was taking place. How they knew we cannot say, but it seems to lend colour to the theory that human beings still possess some rudimentary organ which tells them what is "in the air."



Mr. McMinnies making final preparations for his match with Mr. Bickford.

Lining up for the Start.

At last the riders were satisfied that their machines were in good running order, and about 12.30 the word was given to go.

The *dramatis personæ* were as follows: One 3½ h.p. single-cylinder T.T. Triumph bicycle; one 5 h.p. light twin Vindec ditto—oh! and we must not forget the riders, to wit, Messrs. W. G. McMinnies and O. L. Bickford.

The Vindec machine appeared to be a light Tourist Trophy model equipped for the road. The Triumph motor bicycle was also a light T.T. model, but minus mudguards; engine, 84 mm. by 86 mm. The gear was three and a quarter to one in each case. Other points in common were magneto ignition, Shamrock belts, Dunlop tyres, and footrests, no pedals. It should be mentioned that the trial was merely a private one, and arranged "just for the sport of the thing" to settle a bet. It was very, very cold and windy, and the sky was overcast as the competitors toed the line just before starting off on their race round the track. One lap ($2\frac{11}{16}$ miles) was the distance, commencing near the members' entrance. Upon the word being given, the Triumph got away first, quickly establishing a lead which it never lost. Though nothing serious at first, by the time the machines had reached the far end quite a hundred yards separated them, the gap increasing steadily till the finish, when the Triumph machine was leading by about 150 yards. The trial being a private one, the Brooklands officials refused to announce the times, but privately timed the $2\frac{11}{16}$ miles were covered in 3m. 6s., equal to nearly fifty-three miles per hour. The reason for the Vindec's poor performance was found on dismantling the engine afterwards, a globule of metal having become wedged underneath one of the valves, thus impairing the compression.

Electrically Timed Trials.

As the Triumph was behaving so well, Mr. McMinnies rode it twice over a timed half-mile—the first time against and the second time with the wind. The results were highly satisfactory, the rate of speed being 57.88 miles against the wind and 59.8 miles per hour with the wind.

In spite of these high speeds, one cannot help noticing a strange phenomenon when watching racing

First Motor Cycle Race at Brooklands.—

on the track. The competitors always appear to be going slowly—only about half of their actual speed. On this occasion, for instance, a stranger to Brooklands said to us, "Well, this is a poor performance; he is only crawling!" But to see his face afterwards when he learnt the speed was a picture!

The total weight of the Triumph and its rider was 280 lbs.; rider, 155 lbs. Mr. Bickford weighs 174 lbs.

Both riders were very pleased with the track, and thought it most delightful for motor bicycle racing. Not the slightest sign of overheating could be detected in either engine, both being quite as fast after running "all out" for a long period as in the first half-mile. Taken altogether, the venture has been so successful that we look forward with pleasure to seeing motor cycle racing a regular feature at Brooklands. There would be no dearth of competitors.

W. G. McMinnies covering a half-mile at the rate of 59·8 m.p.h. at Brooklands last week.

Does an Air-cooled Engine Overheat?

A Reply by A. J. Nevill, G.I.Mech.E.

MR. WALFORD'S reply on the above question renders one rather timorous of attempting to refute his remarks, seeing that he is courageous enough to challenge the theory and practice of some of the leading gas engineers of the day. However, as there appears to be yet a little scope for further ventilation of the subject, I have decided to avail myself of it.

In the first place, therefore, I will reply to those of Mr. Walford's remarks on my article of December 18th, 1907, which appear to be of interest.

With regard to Mr. Roots's experiments, these were carried out upon an engine working on a cycle still being used to-day for motor cars, motor cycles, and gas engines, viz., the Otto or two revolution cycle, so that Mr. Walford's description of it as an archaic two-stroke engine is hardly correct. With reference to there being any increase of power when the revolutions were increased by thirteen, Mr. Roots probably did not think it necessary to state an obvious fact. The formula upon which the power would be calculated is as follows:

$$\frac{(W - w)\ 2\ \pi\ r\ N}{33{,}000} = \text{b.h.p.}$$

which may be explained thus: $(W - w)$ is the total load in pounds acting on the brake attached to the engine flywheel, π the circular constant, r the radius of the brake wheel in feet, 33,000 the number of foot pounds constituting one horse-power, and N the number of revolutions per minute. It follows from this that for a given engine, if the revolutions be increased by *only one*, then the power must be slightly increased, or, in other words, power is proportional to revolutions per minute. Mr. Walford's remark on there being probably no increase in power when the extra thirteen revolutions were obtained is apparently a slip on his part; if not, such an erroneous impression of an elementary power law might lead to any amount of theories on overheating.

Mr. Roots's experiments were quoted for what they are worth, and seeing that they were carried out on an engine modern in principle at least, they are worth mentioning. Mr. Roots himself makes final reference to these tests by saying that the results obtained are what might be expected by anyone having much experience of gas engines, to which I need add nothing.

With regard to the experiment of the fan brake, this was carried out by a well-known gas engineer to whom I was assistant, and I myself calibrated the brake (allowing for the lost watts in the armature) and assisted at the test.

Overheating and Compression.

I regret that my theory that a great deal of overheating can be attributed to faulty piston rings was not sufficiently lucid. The following will, I hope, make

es an Air-cooled Engine Overheat?

e matter clear. Given a long steady gradient within e capacity of two well-designed air-cooled machines the same power and make, but one of these to have slight leakage past the rings. This leakage will have tle effect at high speeds, but when the machine com- ences to ascend a hill the leak comes into action, the eed of the engine falls gradually yet surely, conse- iently the cooling effect gets less and less, and the achine finally stops with the engine *excessively* hot. herefore the leak is responsible for the engine's over- ated condition, and the cause of stoppage is a com- nation of loss through the leak, premature expansion the incoming charge, and exhaust retention. The achine which is perfect as to the rings, other things ing equal, climbs the hill steadily, but will probably fairly hot when the summit is reached. It will not ve overheated, however (unless the gradient be excep- nally long), due to the fact that, as each power oke has been doing useful work, the speed has had ne cooling effect. Yet if the hill were prolonged definitely, the perfect machine would eventually give t. the combined causes being premature expansion d exhaust retention.

With reference to the J.A.P. engine, a speed of 4,000 volutions has been obtained, but it is expressly stated at this was with no load, and no mention is made of e duration of the test.

The Effect of Gas Retention.

With regard to the indication diagrams mentioned, may say that I recently did the indicating for a nsulting engineer on the occasion of the official trial a high speed gas engine with suction gas plant. ne effect of exhaust gas retention was most marked. ght spring diagrams which I have taken from average eed water-cooled gas engines also show excessive essure at the end of the exhaust stroke in many stances, and, if this be so, it is fairly correct deduc- n to assume similar conditions in petrol motors.

Overheating may be defined thus: When an internal mbustion engine arrives at that temperature at which capacity for doing useful work is diminished it is d to overheat.

The theory of any internal combustion engine giving ore power the hotter it becomes depends upon the ct of all the heat generated being turned into useful rk. This theory, being an unobtainable ideal, nders the necessity of a limiting value for the nperature of the engine. The heat not doing useful rk (neglecting exhaust gases) goes to raise the nperature of the cylinder walls, and if this undue at be not carried away by a water jacket, or radia- n, or both, the result is premature expansion, and ssibly premature ignition. An internal combustion gine is most economical when the cylinder is as hot possible within the limits mentioned above for the ason that the loss of heat due to the explosion is ereby diminished. This explains why many com- titors in hill-climbing and other events warm up their gines immediately before the start of any competi- n. The result to them is, other things being equal, ey gain a small lead at the start over a dead cold gine, as a greater percentage of heat in their cylinders going to do more useful work than in those which e started when cold. With a water-cooled petrol otor a fact often overlooked is that the maximum possible temperature of the water is 212° F., and the circulation system renders the possibility of the engine being pulled up through overheating very remote. With a well-designed air-cooled engine, however, this possibility is a function of the cooling effect generated by the speed through the air.

Gas Engine Experiences.

With reference to the gas engines mentioned in the correspondence on this subject, the impression prevails that heat is saved by not jacketing the compression space. As a result, the temperature rises to very nearly that of compression, and the entering charge is heated before compression. Moreover, as the piston does not enter the compression space, a quantity of residual gases remain to mingle with the fresh incoming charge and to raise its temperature still more. Throttling occurs if the admission area is small, and the energy of velocity of the entering gas is transformed into heat. The engine is, therefore, in a temporary state of in- efficiency until a scavenge stroke to some extent restores it. This is Mr. Dugald Clerk's explanation, and appears to be more feasible than Mr. Walford's, having regard to the co-efficient of expansion for cast-iron.

In conclusion, the following answers to Mr. Walford's final questions will, I trust, make the matter clear:

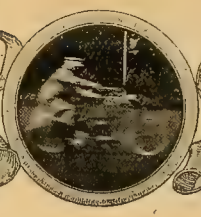
(1.) The cylinder, through lack of efficient cooling, attains a temperature so excessive that it is incapable of performing its function as a chamber for the per- formance of useful work.

(2.) The ingoing mixture is abnormally expanded, with the result that the *quantity* of charge is so reduced as to be incapable of supporting the load. If the engine is running light, *i.e.*, on the stand, the charge is reduced to a minimum, *i.e.*, it is not equal to the friction horse-power, or, in other words, is incapable of overcoming the internal friction of the engine. A careful consideration of Charles's law—which states that if a gas kept at constant pressure is heated the volume increases—and of the possible range of tem- peratures in an excessively hot cylinder will prove the above theory.

In this connection the following abstracts culled from Mr. Burnand's masterly paper, "Thermal and Power Losses in Internal Combustion Engines" (*Engineering*, October 4th and 18th, 1907), will clear up any further doubt: "No ordinary design of engine draws in a charge equal to the piston displacement when reduced to atmospheric pressure (temperature neglected). If temperature effect is included (an un- certain quantity, and largely dependent on design and working of engine), its amount is considerably reduced when referred to atmospheric pressure and temperature. . . . While this (the excessive velocity of the in- coming charge) points to the necessity of ample valve area, it must be borne in mind that prevention of heat- ing of the charge during admission is equally important. The combined risk of overheating in the case of air- cooled engines of from 3 to 4 h.p., and their rapid falling off in power thereby, and refusal to work, emphasises this very strongly."

(3.) The design and condition of the engines are as nearly perfect as possible. In cross-country racing a high rate of speed is maintained, and hills are rushed as much as possible, the cooling effect being therefore a maximum. In the case of track racing the cooling effect is always a maximum.

A MOTOR CYCLE RIDE IN BURMAH.



BEING the possessor of a 3½ h.p. Centaur chain-driven motor bicycle, which I had just converted to magneto ignition, I was anxious to test if there was any improvement in this form of ignition. The test run proved adventurous, and I will relate what actually happened, in order that readers of *The Motor Cycle* may compare the conditions prevailing in Burmah with those at home.

Starting off with no knowledge of how the magneto would behave, I advanced the spark lever, and, running alongside the machine a few yards, jumped in the saddle, and dropped the valve. The engine started with a roar, and soon I was tearing along at a mad pace, my topee (hat) flying away behind me, held by the chin strap to my coat button.

I was making for a quiet open road I knew of, so that I could give my machine its full head, and was just rounding a bend to get on to the road at about twelve miles an hour, when the first of a series of adventures occurred.

As I turned the corner a stiff hill of about 1 in 9 came into view, and at the same time a bullock, roused by the noise of my engine, dashed out of the gate of one of the native's houses thereabouts and made for me, with glaring eyeballs, head down, and tail vertical. A glance was sufficient to show me he meant business, and I immediately adjusted the mixture; but the gradient was too severe for my machine to pick up speed. By this time the bullock's horns were abreast of my right leg. He was much too close to be comfortable, and continued to gallop alongside of me. I dared not loose my hold to open the throttle, and, to make matters worse, the bull was gradually driving me off the road into a ditch which ran alongside. In desperation I took off my hat, and holding it by the chin strap, slashed the bull on the head with it repeatedly; but after fifty yards of this I could see that the best thing I could do would be to stop, and I was rescued eventually by the owner of the vicious beast.

This adventure had left me all of a tremble, although I am not at all a nervous man as a rule. After a few moments' rest I mounted the machine again, and finished the hill in fair style, the road rising up between an avenue of trees. The roads, being in fairly good condition, enticed me to let the machine "out," which I did, and eventually reached the main road to Prome.

Continuing along this road for about five miles, I came to a by-road leading round the Kokine Lakes—a lovely sheet of fresh water, about the best in Burmah, I think.

A Burst of Speed.

Knowing every yard of the road, and also that it was little used (and oh! you speed men at home, no police traps!), I coaxed the machine to do its best. A liberal dose of oil, throttle halfway open, and the spark advanced to its limit, I flew along till the force of the wind made the water run from my eyes, and my fac smart, the chains whistling out a musical hissing t the engine's regular barks.

I covered three to four miles at this pace, when o slowing for a bad corner I noticed with disgust tha my front tyre was nearly flat. On pulling up, I foun a huge horseshoe nail sticking out of the side of th tyre. I promptly got to work to remove the cover, a the fizzing of the air around the nail told its own tal and I knew I was paying for my burst of speed on th inviting stretch of road.

The road afterwards commenced to rise and fall long stretches, right round one half of the circumferen of the lakes, which were visible from time to time. Th islands and bridges over different spans of water ma a most picturesque scene, the rays of a setting su lighting up the water like a sheet of gold, and bringi the palms and giant foliage into strong relief—a pictu which only a great artist's brush could paint.

I had travelled about eight or nine miles after repa ing the puncture, and was suddenly turning a corn when I found myself in the midst of a flock of cows a water buffaloes, the first three or four rows dashi helter-skelter to the sides. I came to a full stop rath quickly, the front wheel of the bicycle planted nic between the hind legs of a cow. It took about fi minutes coaxing, shouting, and sounding the ho lustily to get clear of the herd.

The road being clear again, and knowing that I w approaching about a mile and a half of straight f road through an indiarubber plantation, I hasten along. The sun was already well down, and night fa rapidly in Burmah. But my adventures were not ov I was speeding along at a rare bat, watching the ro ahead intently, when with a howl and a yelp, a beas long-tailed pariah dog dashed out of a pathway alon side, and knowing that to try to avoid it might pro serious, I raised the exhaust lifter and gripped t handles firmly, hitting the dog fair and square in t middle. He slunk away, and had no doubt been taug a lesson which would be hard to forget.

Negotiating a Burmese Birdlip.

The homeward journey was on a rising road, w short flat stretches, and the traffic getting thicl checked my speed considerably. Four miles or brought me into the outskirts of the town proper, I I had still two more steep hills to climb, the first which, from photographs I have seen in *The Mo Cycle*, I should liken unto the famous Birdlip H having two sharp bends and a bit of one in seven the top. Having climbed this hill a good many tin I know just how to take it, and I rounded the fi bend in fairly good style, and was soon gaining spe on the straight section. I took the second bend quite twenty miles an hour, and soared over the t of the hill, but was obliged to immediately switch on account of the wretched state of the road. For

A Motor Cycle Ride in Burmah.—

next five miles I proceeded carefully, and, nearing home, the tall spire of the Sewa Dagon Pagoda reared its massive head in the deepening sky, its very beautiful canopy, which is one mass of solid gold filigree work, with pendants of the same precious metal dangling from its several points, which are said to be incrusted with diamonds and precious stones worth several fortunes. The highest point of this wonderful Burman prayer tower is about 250 to 300 feet above road level. About its base are several beautifully adorned sea lions standing 20ft. high, the breasts and heads being adorned with gold leaf and coloured glass, etc. The front hall or entrance is all splendidly carved in teak wood, while hundreds of tiny carved gods, painted in gold and colours to represent the particular goddess required, are placed in every attitude imaginable in tiers all around it.

The Biter Bit.

Before reaching home, I called on a friend and was away about five minutes. When I returned a group of Burmans and others were vainly trying to find where the fire was which they thought drove the machine. One man bolder than the rest asked me in broken English to show him. I told him it was in the cylinder, which by this time had cooled down. He promptly put his hand gingerly upon the fins on the cylinder head, and his look of amazement deepened when he found it nearly cold. He then asked me how I got up steam, as he could see no handle, so I called his attention to the sparking plug, and told him to put his hand on it and he would feel the heat gradually coming in it. He caught hold of the plug with a vicious grip, and I forced the pedal down quickly. He jumped, but was quite satisfied, and commenced jabbering away in Burmese to all around him (no doubt cursing me too). The others saw me laughing heartily at the joke and joined in.

Thinking it was high time to clear, I hooked up the stand, and was about to vault into the saddle when my foot slipped. The front wheel swerved towards me, I promptly dropped the machine and then measured my length on top of it. Of course, it was only natural that the bystanders laughed to see the downfall of the joker, and if I had only known their lingo I should no doubt have felt hurt in mind as well as body.

I found I had done nothing worse than smash the pedal cap, bend the pedal pin, and tear my trousers.

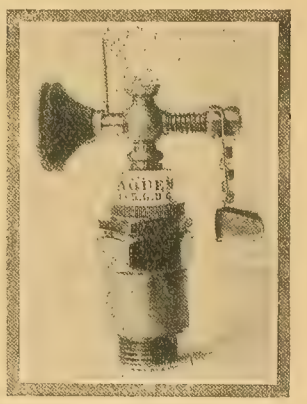
I climbed the last hill before reaching home with all levers fully advanced, and in a few minutes had finished a most adventurous day's run.

I should like to mention in conclusion that there is nothing like a magneto for Burmah or India, and, as I have covered 6,000 miles in eight months since the ride described above, and never had a moment's trouble, I have good reasons for recommending it. C. H.

Motor Cycle Clothing and Accessories.

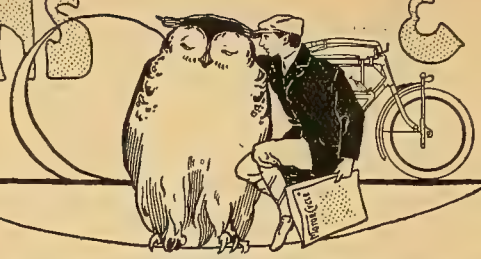
WE have never yet seen the wants of motor cyclists so well looked after as they are at Gamage's, Holborn, E.C. In designing articles of apparel for riders of motor bicycles his firm has been particularly careful to render them at once warm and at the same time pleasing in appearance. The day of the black leather coat and black leather breeches is over. To render the ordinary Norfolk or knickerbocker suit windproof and warm it has introduced a jacket and breeches in chamois leather, which are meant to be worn over the under garments, thus protecting the most delicate portions of the anatomy from the evil effects of the most severe winter weather. The same articles are also made in velvyt, which possesses a distinct advantage over leather, in that it may be washed and rewashed with impunity. A new motor cycling suit is also worthy of mention. The front of the breeches and the sleeves are lined with soft chamois leather, a warm detachable breastplate protects the rider's chest, and the jacket is made either to button up close round the neck or to fold back like an ordinary coat. The suit is made to order, and Messrs. Gamage have a large stock of material from which a selection may be made. Another innovation is the Antichill, a woollen protector for keeping the cold from the neck and chest, and the improved Antichill, which, in addition to the above, protects the back of the head and ears. In mackintoshes the rider has been equally well considered. The Ramsay mackintosh, which is provided with thigh attachments which are normally buttoned up inside the coat, is a most excellent garment, while a medium length waterproof known as the Penrhyn is another useful article of clothing. Ordinary mackintosh coats and leggings are also stocked in large varieties.

Messrs. Gamage have also marketed the Eyquem sparking plug, which we illustrate herewith. This plug serves three purposes. The central core is hollow, so that on turning the wooden handle shown on the left of the illustration the compression tap is opened and paraffin may be injected into the cylinder. Secondly, there is an iron wire attached to the spindle of the tap, which may be turned downwards, so that the current passes direct from the high tension wire to the frame, thus cutting out the ignition altogether for testing the high tension circuit. Thirdly, the plug itself is well made and of good quality. The central core terminates in a five-pointed disc, which forms the gaps across which sparks jump to the body of the plug. The short circuiting rod may be used as a safety device for preventing unauthorised persons from starting the machine, as by its means the plug is put out of action altogether. This practically prevents the motor cycle being started in the owner's absence. The price at which the plug is sold to the public is most moderate.



Motor cyclists who wish to communicate with Minerva Goods and Repairs Department should note that the address is now 15-17, Charlotte Street, Tottenham Court Road, W.C.

QUESTIONS & REPLIES



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Accumulator Charging.

I am charging my 15 ampère hour accumulators at home, and circumstances allow a charge of only five or six hours nightly, and at a rate of from ½ to 1 ampère. I see that the makers of the Castle place the maximum charging rate at 1½ ampères. Am I in any degree injuring the accumulators by so charging?—C.S.A.R.

Slow charging is beneficial to accumulators rather than otherwise, but, of course, it means that you will have to charge longer than you would if you charged at the full rate.

Cleaning Magneto Oil Reservoirs.

Referring to a recent tip in *The Motor Cycle*, "Magneto reservoirs require swilling out with paraffin about every 500 miles." Since it is a reservoir, how do you get the paraffin out before putting fresh lubricating oil in?—T.M.S.

Underneath each reservoir is a screw. If you undo this you will find a wick lubricator consisting of a brass tube containing a spring, at the end of which is a small wick. Remove this and the reservoir can be swilled out. It is also as well to wash the wick in paraffin. The paraffin should be allowed to drain off, and you could use blotting paper spills to make sure all traces of paraffin have disappeared. Then refill with lubricating oil before running machine.

Spring Forks and a Free Engine.

(1.) Is a Vindec with Truffault spring forks suitable for fitting a sidecar to? I have seen mentioned that a sidecar is not satisfactory with some spring-framed machines. (2.) Do you know of any free engine device that could be relied on to start cycle and sidecar loaded from a standing position, power 5 h.p., weight of passengers, say twenty stones?—EXS.

(1.) We do not think you would find any disadvantage in Truffault forks used with a sidecar. Spring-framed machines are different from spring-forked machines. (2.) The only thing to do if you wish to start from a standstill is to have a good two-speed gear and free engine clutch, when you would be able to start from a standstill by means of the low gear. The Vindec two-speed gear and free engine clutch would do what you require.

Advancing Timing of the Spark.

I have a Rex de Luxe which is running splendidly, but I think it ought to go faster. The ignition is Bosch magneto, and as timed now with the sparking lever fully advanced, the spark takes place when the piston is dead at the top. If I were to alter the timing so that with sparking lever fully advanced the spark took place just before the piston reached the top, would this give me greater speed? I should also like to know why magneto ignition should not be timed the same as battery ignition?—D.G.B.

It seems quite evident that your magneto is too much retarded. When the spark lever is fully advanced the points of the contact breaker should begin to separate when the piston is about a quarter of an inch from the top of the compression stroke. The reason a magneto is not timed as in the case of battery ignition is because the best spark from a magneto is obtained with the contact breaker in one position, *i.e.*, with the lever advanced. Also the spark from a magneto is automatically advanced, that is, the faster the armature is rotated the better the spark.

Occasional Misfiring.

(1.) My 3 h.p. Triumph, magneto, starts from cold easily, and fires regularly for about a mile. It then begins to misfire badly, and no alteration of mixture will cure it. When pedalling on the stand there is a good and regular spark at the plug. The jet and petrol pipe are quite free, and as far as I can see the float is all right. If the engine is allowed to cool down it will again run all right for a short time. I have tried a different sparking plug without effecting any cure. Do you think that the magnets require re-magnetising? (2.) Is it possible for permanent magnets to recover some of their strength when not used for a while in the same way as a nearly exhausted accumulator?—P.C., Kew.

(1.) The trouble appears more likely to be in the plug than anywhere else on the machine. Certain plugs have their insulation impaired by the heat, and some especially are worse than others in this respect when they have to work with magneto ignition. Possibly you got hold of another defective plug when you discarded the old one. You might, however, make certain that neither of the valves stick in the guides when the engine is hot. It is most unlikely that the magnets require remagnetising. (2.) No, permanent magnets, if they have lost their magnetism, do not recover their strength after they have been allowed to rest in the same way as accumulators do.

Preventing Rust, and Accessories for New Machine.

(1.) My motor shed is in an exposed position, and I found the spokes, rims, etc., of my last motor cycle liable to rust. Is there any method of treating or enamelling these parts in order to prevent this as much as possible? If there is I should like to specify for it in ordering my new machine. (2.) Should I specify for Shamrock-Gloria or Stanley-Dermatine belt? (3.) Is there a self-sealing inner tube made for motor cycles?—W.A.F., Ireland.

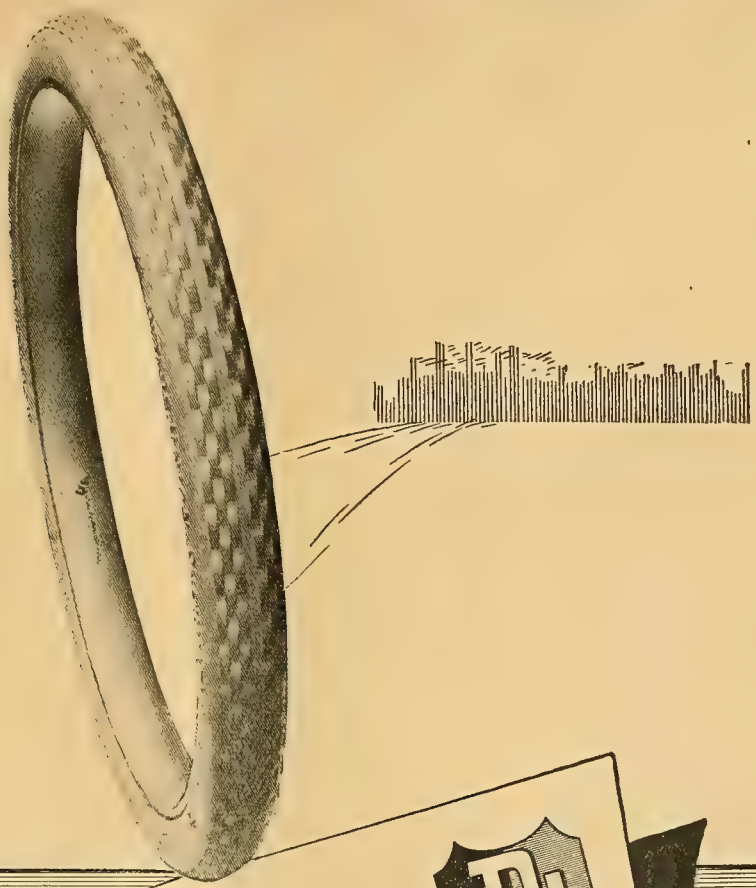
(1.) Yes, you can get the spokes covered with quick drying cycle enamel, or if you are having a new machine order the rims and spokes to be stove enamelled. (2.) Either of the belts mentioned would suit you. (3.) Yes, self-sealing inner tubes for motor cycles are made by the Self-sealing Rubber Co., Ltd., Ryland Street, Birmingham.

Removing Cylinder and other Queries.

(1.) How can I remove cylinder from my N.S.U.? I have removed all nuts, etc., and scraped round joint with screwdriver, but it appears stuck by the packing, and I cannot move it anyhow. (2.) Will rain on Eisemann magneto cause short circuiting? I don't think rain would get to platinums, as cover fits well. (3.) Is it as good to force grease to cycle bearings with grease pump as to oil them with ordinary oil, and will grease last for two or three months?—E.A.L.

(1.) There should be no difficulty whatever in removing the cylinder. Start the cylinder moving with a thin cold chisel, used very carefully, then insert a wood wedge which gradually drive round so that the crankcase and cylinder are not strained unequally. (2.) Provided the terminals are well protected, there should be no trouble in this respect. (3.) Grease will do, but oil is better.

"JUST ARRIVED."



To All Motor Cyclists

who have been waiting the arrival of a perfect "all rubber" non-skid Motor Cycle Tyre, this latest arrival from the PETER UNION FACTORY will appeal with peculiar interest. Some special points to note—the Basket pattern tread, its extension over the walls of the cover, the large amount of rubber which ensures great resiliency without loss of speed, and offers sure resistance to punctures.

Write for particulars to—**PETER UNION TYRE CO., LTD., 6, Upper St. Martin's Lane, London, W.C.**

Sole Agents for South Africa—SHIMWELL BROS., Caroline Street, Birmingham. Sole Agents for Scotland—MESSRS. RIGNALL-HOLDER, LTD., 18, Swinton Row, Edinburgh. Sole Agents for Manchester and District—THE MANCHESTER AUTO-CYCLE CO., LTD., 65, Great Jackson Street, Manchester. New York Agency—MR. E. KITCHENER, 206, West 76th Street, New York City, U.S.A.

In answering this advertisement it is desirable that you mention "The Motor Cycle."

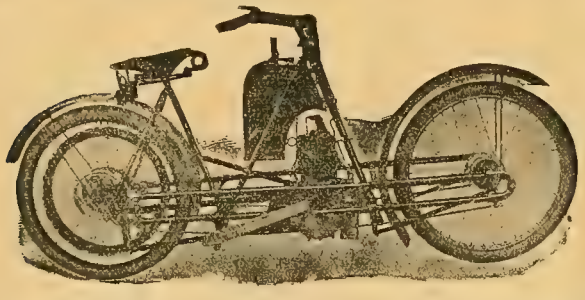
A Clever Salesman

may make you believe that black is white—whilst he is talking—but **no amount of talking** will ever make a motor bicycle with rigid frame as free from vibration as a spring frame machine, scientifically designed, *i.e.*, not one with just spring forks or spring saddle pillar.

No amount of talking can render the ordinary design free from the nerve worrying risk of side-slip directly the roads get at all greasy.

No amount of talking will convince a practical engineer that the ordinary diamond-frame pattern, admittedly perfect for push cycling, is the ideal pattern for a motor cycle with an extra 100 lb. or so of machinery, on which the road shocks encountered are of an entirely different nature.

No amount of talking can possibly describe the general excellence—the marvellous comfort—the absolute luxury of the two spring-frame machines shown below.



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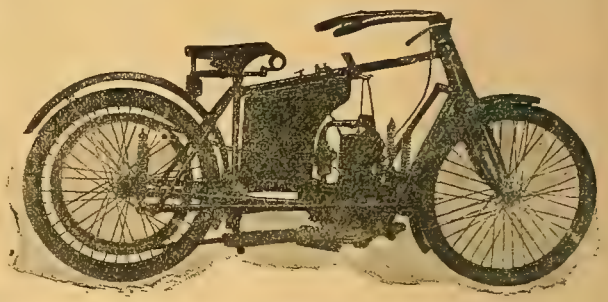

THE "ZENETTE." Price 50 guineas nett, with 3½ h.p. Fafnir engine, Longuemare carburetter, Watawata belt, Brooks' Saddle, and including the marvellous new variable gear, operated by gently turning a handle.

Orders for these (and for Zenith Spring frame Tricar, 75 guineas; and the luxurious Zenette Tricar at 90 guineas) should be placed *immediately* to avoid disappointment. Our present works are unfortunately limited in capacity and we can only execute orders in strict rotation.

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9. A copy, post free, of the Automobile Handbook.
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12. Information and advice generally on motor cycling matters.
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I desire to become a Member of the AUTO-CYCLE UNION, *and shall be glad if you will place my name before the Committee at its next meeting. Enclosed please find my Entrance Fee and Subscription of.....*

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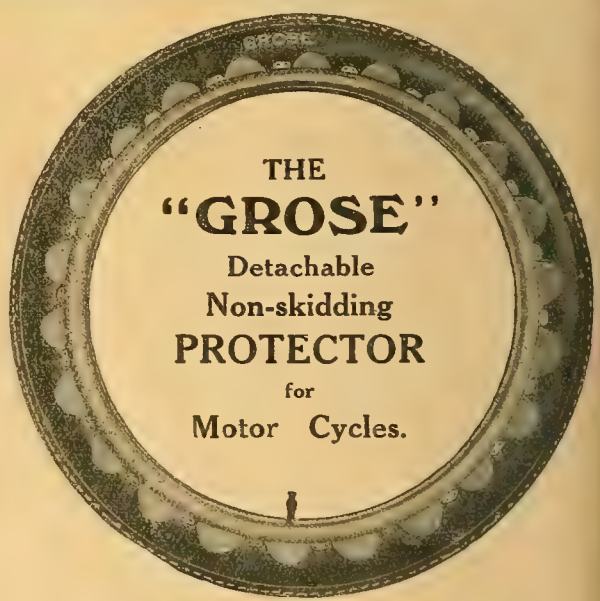
Club..... *Profession*.....

If connected with the Trade or not .....



Sole Manufacturers—

GROSE LIMITED,

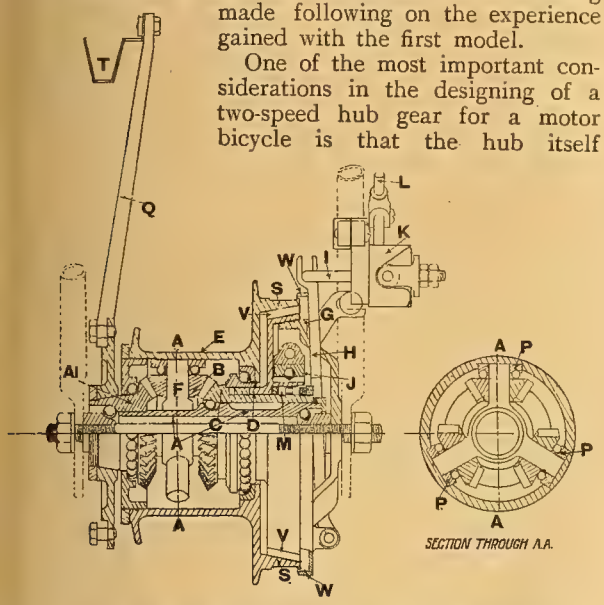
NORTHAMPTON.

Telegram—Case. Telephone—111.

The Dene Two-speed Gear.

MR. J. R. MOORE, of the Dene Cycle Co., Newcastle-on-Tyne, called at our offices recently to show us a two-speed hub gear incorporating a free engine he has introduced for motor cycles. He brought a machine fitted with an experimental gear, and the drawing which we reproduce herewith is a section of a hub which is being made following on the experience gained with the first model.

One of the most important considerations in the designing of a two-speed hub gear for a motor bicycle is that the hub itself



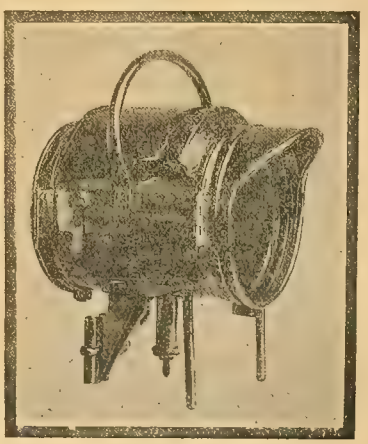
shall not be so unwieldy as to necessitate a number of alterations to the rear frame before it can be fitted to a standard pattern machine. The hub we are about to describe has an overall width of 5⅞in., so that any machine with back fork not less than this width will take the gear, provided there is a proper clearance for the belt rim. It will be noticed that the gear is on the lines of a bevel differential, the low speed being obtained by locking the right-hand bevel wheel C. If the normal gear of the machine is four and a half to one, when C is locked, the gear is reduced to nine to one. A A is a sleeve which passes right through the centre of the hub shell E, and has solidly attached to it the left-hand bevel wheel A_1. The axles or studs F on which the small bevel wheels B rotate on ball bearings are steadied at the head by carriers P, which slide into grooves or keyways cut in the solid portion of the hub shell. D is a movable clutch faced with leather on the outer periphery, and engaging with an internal cone on the hub shell E. Internally, it engages with a fixed clutch face G, the two surfaces which come into contact being metal to metal. D is constantly kept in engagement with the hub shell by means of a spring M, and in that position the hub revolves solidly, which, of course, is the high gear. D can, however, be withdrawn to the right by means of the lever H, rod I, cam K, and rod L, which are operated from the top tube by means of a single lever provided with the Autoloc or Bowdenloc attachment. When the lever H is moved to the right, it draws the bearing J and with it the clutch D. C being suitably attached to D is thus brought gradually to rest the moment the internal portion of the clutch D engages with the external part of the fixed clutch G, which gives the necessary reduction.

The following advantages are claimed for this two-speed hub: *(a)* That there is a reduction in the number of parts compared with some other hub gears; *(b)* a patented method of holding the slow speed pinion by means of the fixed and movable friction clutches; *(c)* the improved single lever operating mechanism.

The belt wheel Q is made of aluminium, and bolted to the belt rim T at one end and a flange on the sleeve A at the other. The total weight of the hub and belt rim is 14 lbs. more than a complete ordinary wheel without the two-speed hub. A band brake can be fitted if desired, taking a bearing on the drum S arranged round the outer flange of the internal clutch on the hub shell E. It will be noticed that a dust cap has been formed on G at the point W W. This, it is claimed, excludes all dirt from the clutch mechanism.

THE F.R.S. LAMP.

WE have received a photograph and inspected a sample of a new motor cycle gas lamp to be called the F.R.S. lamp. As will be seen from the illustration, the lamp is a large one modelled on the lines of the searchlight patterns used on motor cars. The principal features of this new pattern are that the burner is adjustable to and from the lens, and it has combined in the burner a cotton-wool refining chamber. To enable the lamp to stand upright folding legs are provided, and there is a bail handle by which it may be easily carried. The front and back are both hinged, enabling a rider to open the back without detaching the lamp from its bracket, so obtaining a bright light shining directly on the machine to facilitate any adjustment that may be necessary at night. The front glass is divided vertically, and a special arrangement is provided to enable a broken glass or lens to be replaced in a few minutes. The bracket is so designed and fitted to the lamp as to reduce to a very large extent the leverage on the bracket when compared with the usual one attached to the back. It is claimed that the motor bicycle size will throw a direct beam of light a distance of 250 feet; the light extends to 450 feet, and small print can be read with its aid at a distance of 380 feet. The makers are Messrs. Samuel Hall and Sons, Ltd., 12, Clyde Street, Edinburgh, at which address Mr. F. R. Swinburn, himself a motor cyclist, is taking charge of the motor extensions of the business.



CURRENT CHAT.

Special Features.

FIRST MOTOR CYCLE RACE AT BROOKLANDS (Illustrated).

A MOTOR CYCLE RIDE IN BURMAH.

A Six-cylinder Motor Cycle Wanted.

Last Thursday morning we received an enquiry from a London firm of engineers for the name of a maker of a six-cylinder motor cycle. Needless to add, we were unable to oblige in this instance.

Tour de France Reliability Trials.

Entries are now being received for the above reliability trials organised by the Auto Cycle Club de France, which are fixed to take place from the 22nd to 28th of next month. The Alcyon, Quentin, Ronteix, and Ivry firms have already signified their intention of competing.

Club for Anerley District.

It has been proposed to form a motor cycle club for Anerley and district, with headquarters in or near the Crystal Palace. Local motor cyclists willing to support the movement are asked to communicate with the hon. sec. *pro tem.*, Mr. R. O. Mitchell, 13, Weighton Road, Anerley, S.E.

M.U. Petitions.

The General Committee of the Motor Union at their meeting held on Wednesday last decided to circulate a petition throughout the country praying that the moneys derived from the taxation of motor and other vehicles shall be devoted to expenditure on Highways. The petitions are to be returned by March 25th, 1908, at the latest, to the Motor Union, 1, Albemarle Street, Piccadilly, W.

English and American Records.

One day last week Mr. H. Rignold called on us with reference to the letter published in our issue of February 19th and signed W. Wray, jun. In this letter Mr. Wray claimed the world's record for one mile flying start, which our contributor, Mr. J. Sinclair, credited to H. Rignold, the record being made at Brighton on July 20th, 1905; time, 46⅕s. W. H. Wray's performance was accomplished at Ormond Beach, Florida, on June 25th, 1907, when he was timed to cover a mile, flying start, in 44⅖s. Mr. Rignold asked us if the Auto Cycle Union recognises American records, and we thereupon communicated with the secretary, whose reply is that the A.C.U. has not hitherto officially recognised records created in America, therefore the list of records as published on page 6 of *The Motor Cycle* for January 1st is correct.

Fine Weather All the Year Round.

Mr. H. R. Stokvis, a Melbourne correspondent, informs us that the pastime of motor cycling is gaining in popularity in Australia every week, and seems likely to continue. Fine weather prevails all the year round, and motor cyclists have no need to fear wet and greasy roads which we experience in England during the winter months.

Canadian Roads in Winter.

In renewing the subscription to *The Motor Cycle* the Tangent Cycle Co., of Toronto, ask, "How would English riders relish a ride in Canada with from four to fifteen feet of snow, and 18° below zero, the conditions now prevailing." A good idea would be to utilise the hot exhaust gases as illustrated in our Christmas issue.

Mechanical Nipples for Bowden Wires.

We have now heard from the maker of the mechanical nipple for Bowden wires mentioned by a contributor in these columns. The maker informs us that they were not a success, and he has consequently discontinued their manufacture. Correspondents who have written us for the maker's address please note.

To Compete in the T.T. Again.

Mr. H. Rem Fowler told us the other day that but for anything unforeseen transpiring, he was a certain starter in the next Tourist Trophy Race. He has already received delivery of the twin Norton he intends riding.

The Motor Cycle Race at Brooklands.

W. G. McMinnies informs us that he holds the official certificate of the Brooklands Automobile Racing Club for covering a flying half-mile in 30⅒s., the fastest speed yet accomplished at Brooklands on a motor cycle. The machine being geared 3¼ to 1, the engine speed works out at over 2,500 revolutions per minute. Mr. McMinnies is going to try and improve on the above, using a 3 to 1 gear.

Another Race at Brooklands.

O. L. Bickford's speed over the flying half-mile at Brooklands was 51.(miles per hour, but his machine is capable of a much finer performance than it actually did. In its best running order and suitably geared, it should do better than a mile a minute. After his match with Mr. McMinnies Mr. O. L. Bickford drove a 15 h.p. Ford car against Mr. F. R. Samson on a 14-16 h.p. Argyll. This time he won speed 36 m.p.h.

A few riders of Vindec Motor Bicycles with their machines outside the works of Mr. D. Roberts, of Eastbourne, who is the local agent for these popular machines.

A Trophy for Climbing Sutton Bank.

Last week we mentioned that the Leeds Motor Cycle Club had seven valuable trophies in its possession for competition among members. Still another trophy has been added to the list during the week, and it will be awarded for the best ascent of the great Yorkshire mound many times referred to in these columns, viz., Sutton Bank. The date of the competition, and further news regarding the go-ahead Leeds M.C.C., will be found in our "Club News" pages.

The Future of Motor Cycling.

We give this week a summary of Mr. H. G. Bell's paper, "The Future of Motor Cycling," read before the A.C.U. last Friday evening. Unfortunately, owing to the length of these papers, it is impossible for us to publish the whole of them. This week we select the most interesting items and publish as much of the discussion as possible, the remainder will be published next week.

Police Traps.

The trap at Stilton, Norman's Cross, has been suspended for the present, but will be in operation again as soon as the condition of the road improves. A valued correspondent reports police activity on the Coventry and Leamington Road, at Stoneleigh, Warwickshire, particularly in the neighbourhood of the bridge over the river, and on the hill.

FUTURE EVENTS.

Mar. 21—A.C.U. Annual General Meeting of Council.
" 21-28—Cordingley's Motor Show, Agricultural Hall.
" 28—M.C.C. Opening Week-end Run to Brighton.
April 4—Lewisham A.C. Open Hill Climb for Motor Cycles
" 16-20—M.C.C. Easter Tour.
" 18-20—Brooklands Motor Races.
" ——A.C.U. Quarterly Trial.
" 19 (Easter Monday)—Lincolnshire M.C.C. Hill Climb.
May 2—M.C.C. Members' Hill-climb.
" 9—Brooklands Motor Races.
" ——A.C.U. Annual Hill Climb.
June 5-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U 24 Hours Ride.
" ——A.C.U. Land's End to John-o'-Groat's Six Days' Reliability Trial.
July 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.

A Remarkable Hill-climber.

On Saturday last, February 29th, a few Oxford University motorists held a private hill-climb on Dashwood. A strong wind blew down the hill, and the roads were terribly heavy. Fastest time was made on a 3½ h.p. Triumph motor bicycle by Mr. W. G. McMinnies, who ascended the hill in 1m. 2s. Next in order of time came Mr. J. Horlicks, 45 h.p. Daimler, 1m. 9s.; Mr. V. Eaglestones, 5 h.p. Vindec Special, 1m. 29s.; Mr. L. Stevens, 40 h.p. Weigel, 1m. 29s. On formula the Triumph won in its class, and a 15 h.p. Enfield, driven by Mr. W. R. Morris, won in the car class.

The First Hill-climb in 1908.

For the Lewisham A.C. open hill-climb for motor cycles on April 4th, it is said an almost ideal hill has been found that provides the requirements called for in modern hill-climbing competitions. It is charmingly situated amidst the wildest of woodland scenery on a little used byeroad, is very stiff, of good length, and with no sharp bend. Unfortunately, there is not very good provision for spectators.

Polo Match on Motor Cycles.

During the winter months German cyclists indulge a lot in figure riding and cycle polo in halls, and this year's Jubilee Festival of the Berlin Branch of the German Cyclists' Federation, down for March 14th, is to have a novel item in the form of a polo match on light motor cycles.

The Future of Motor Cycling.*

I MAY just as well state at the start that I am very optimistic as regards the "future of motor cycling," and, moreover, have been so ever since, many years ago, I first crossed the saddle of a 1¼ h.p. front-driven machine. Unfortunately, there are reasons, real or imaginary, which are considered sufficient to deter many would-be riders from sticking to the motor cycle, and others even from purchasing, which are as follows: (1) Initial cost, depreciation and upkeep; (2) want of handiness and excessive weight; (3) failure to run at low speeds; (4) lack of nerve on the part of the prospective rider to essay the initial ride; (5) difficulty of starting off comfortably; (6) side-slipping propensities; (7) lack of general comfort. This may seem a formidable list, but I will proceed to deal with each, endeavouring to prove that each item may now be made to assume a less serious aspect than formerly.

Price.

There is a certain class of people who lay it down as an inviolable law that every year should bring about a material decrease in the price of any new article. They entirely overlook, however, the fact that when an invention is in the early or evolutionary stage it is impossible for manufacturers to reduce prices. They have still to defray the cost of patents and new designs for every year's models.

Coming to depreciation, the outlook is decidedly better, for, although makers have yet far to go, the alterations each year are not so drastic as to preclude the owner from obtaining proportionately a much better price for a second-hand machine than was the case in the earlier days of the pastime. I particularly noticed the difference in this respect last year. Depreciation has undoubtedly been instrumental in stopping the careful man from purchasing, but I trust that if this paper reaches the eyes of such it will remove what was after all a perfectly reasonable objection.

The second item—cost of upkeep—never was a very serious matter, though for some reason an idea has obtained some prevalence that this is an expensive item. Perhaps my experience in this direction for last year's riding will prove interesting. Though I covered about five thousand miles, the only renewals necessitated were one belt and an accumulator, and both are still in good preservation. The battery was recharged regularly every three weeks at 6d. per time. As I can generally run on this particular machine 100 miles to a gallon of petrol, and use approximately one pint of lubricating oil for every 150 miles, the cost of fuel and lubricant for my total distance is easily worked out.

It is, however, a very hard matter to convince non-motorists of the cheapness of our method of travelling. Last September I covered 550 miles during a two weeks' vacation, and toured throughout the delightful county of Derbyshire, and afterwards in North Wales. Reckoning petrol at 1s. 4d. per gallon—which I think was the average price I paid in the provinces—this item amounted to 7s. 10d., and lubricating oil to about 3s., making 10s. 10d. in all.

Under the heading of upkeep we must include the not insignificant items of the driving license and Inland Revenue license. The latter item, I am sorry to say, looks like costing us more. We are to carry some of the burden of our four-wheeled brethren. Surely 15s. a year for a motor bicycle is ample; but should the proposed new scale of rates be adopted, another 5s. may be tacked on, which brings the total, with driving license, to 25s., which must be paid every year. Think what this means to a man who starts, or is contemplating starting, with a second-hand machine costing about £10. The fear of being surreptitiously but unjustly stopped by the ubiquitous man in blue is, I believe, another reason why some would-be motorists hesitate about taking the plunge. Most of us will remember the case which *The Motor Cycle* gave prominence to a few months since, in which a young fellow was involved who had no doubt diligently saved up and purchased a low-powered machine incapable of doing anything like the speed at which he was accused of riding.

Want of Handiness.

Having disposed of the initial cost, depreciation, and maintenance questions, I now come to an equally important point,

*Summary of a paper read before the members of the Auto Cycle Union by Mr. H. G. Bell on Friday, February 28th, 1908.

The Future of Motor Cycling.—

viz., the absence of "handiness" and excessive weight. I give the trouble this term because I think it best explains the nature of this particular difficulty. I shall always remember a friend saying to me a few months ago, "Why cannot manufacturers give us the facilities incorporated in a car? Why cannot the engines of motor bicycles be started by hand, and then the rider straddle the saddle, pull a lever or something similar, and glide off?"

We cannot reduce the weight of the machine without reducing the size of the engine, so that if we want a machine we can start by pedalling it must perforce be a lightweight of comparatively low power. Then the question arises, can we obtain a light machine capable of travelling at a good average speed and yet be sufficiently powerful to tackle all ordinary hills? I think we may safely answer this question in the affirmative.

Other papers have been read in this room previously by the Rev. B. H. Davies and Mr. J. Van Hooydonk respectively, who dealt quite adequately with the machine fitted with a two-speed gear, yet I feel that at the risk possibly of reiterating some of their remarks I must say a few words about this type of machine. I feel sure it will come into its own sooner than its present degree of popularity would suggest, for it offers facilities for giving the type of man I have referred to earlier, who wants to start from a standstill, just what he requires.

The other advantages of this type of machine, except in relation to its comparative freedom from side-slip, I shall not touch upon now. This matter of side-slip is really most closely connected, if only for the reason that its probabilities are considerably minimised in the two-speed gear machine.

First, with regard to starting from a standstill. This can be, and is, rendered practicable in the case of practically any of the motor cycles fitted with a two-speed gear, because of the incorporation of a free-engine clutch.

For some, to me, quite unaccountable reason, this type of machine has not met with the cordiality of recognition it deserves. What this type of machine wants now, and wants badly, is publicity, and the best way that publicity can be gained will be for its advocates to enter two-speeders in every competition for which they can be entered legitimately.

Before leaving the subject of starting from a standstill, I should like to mention that it is possible for those who wish to do this, even on a mount not boasting a two or more speed gear.

I have a "Mabon" clutch here, which is worthy of your very close attention. It fits on to the engine-shaft, and is not at all unwieldy. Its operation is carried out through the medium of a Bowden lever and wire, the former being placed on the handle-bar. It can hardly be injured by clumsy usage, and will withstand any amount of wear if handled intelligently.

The two-speed gear in use on a machine effects, as I have said, quite a reduction of the side-slip evil. Its existence on a machine permits a slow speed to be maintained without any sharp "snappy" pulls on the back wheel, since the engine can be run at a fair speed, though the machine's rate of progress is comparatively slow. Where the two-speed machine scores most of all, perhaps, is in hill-climbing when the roads are treacherous. The fast rush necessary on the single-geared machine, when one wishes to ensure reaching the top, is—in spite of what some say to the contrary—attended by considerable risks.

Lightweight Machines.

Ever since I followed the performance of certain lightweight motor bicycles in the Six Days' Trials and Quarterly Trials of the Auto Cycle Union last year, I have recognised that this type of machine, far from being the toy it was in some quarters dubbed, is a real practicable mount, and I venture to predict that this form of motor cycle will give a most beneficial fillip to our pastime.

The lightweight machine, I believe, will open the eyes of an entirely new section of the public to the fact that has hitherto been known only to a few, *i.e.*, that the heavier type of machine is not the only motor cycle available. When one considers the part the ordinary push bicycle plays in every day business life now, and the number of men who use it for making commercial or professional calls daily within a certain radius of their homes or places of business, it is easy to see how greatly the number of motor cyclists can be augmented when these possible recruits see that a machine can be procured by them which will be as tractable and as easy to manage as the push bicycle.

Side-slip—one of the most insidious evils we have to contend with—is reduced almost to a minimum with these lighter mounts, for two reasons. First, the small power of the engine and the low gear do not give rise to the jerky and intermittent pull on the back road wheel, which is one of the most prolific causes of side-slip; secondly, under very bad circumstances, such as the enforced negotiation of a stretch of greasy stone setts, the machine can be pedalled whilst still driving lightly with the engine.

The light F.N. was the first lightweight I tested. I rode from the agent's showroom in Great Portland Street to Oxford Circus, down Regent Street, along to Trafalgar Square, and then the whole length of the Strand, the surface of the roads being abominable. I do not mean that they were bumpy, but greasy. From the Strand I slipped down to the Embankment, then rode up Northumberland Avenue, across Trafalgar Square, on to Piccadilly Circus, and up (or down) Piccadilly to Mr. Straight's office in Down Street. I was never in difficulties, and never had even the least apprehension of a side-slip. The control of the machine was so easy as to be really delightful. I can speak in just as good terms of the other lightweights I have been riding recently, though I did not have the opportunity of putting all of them to such really searching traffic tests.

Hill-climbing.

The chief point I was concerned about in regard to light weight machines was their merit in hill-climbing. I felt from the first that the future of this type of machine was dependent to a very great extent on their ability or failure to master fair gradients. There again I can confidently say that any doubts I entertained have been most thoroughly and pleasurably dispelled. Previous to riding any of the machines I tested, I had seen the 1¾ h.p. light F.N. climb Dashwood Hill without any aid from the pedalling gear. I had also seen the Motosacoche climb the same hill with but a few strokes of the pedals near the top. There are, perhaps happily, few hills like Dashwood on our main roads. I have tackled hills, however, if not so long, certainly steeper than this, and have been agreeably surprised to find that I could get further up certain hills before any necessity for pedalling became apparent with two of the lightweights than I could with a standard 2¾ h.p. machine weighing about 160 lbs.; though I may remark that the gear on the latter was higher than is normally affected in motor cycles of identical engine output. The easiest ascent was made on a machine fitted with a higher pedalling gear and longer cranks than usual; it was also the lowest-powered and lightest machine of the four. Of course, if we increase the pedalling gear for hill-climbing, starting by pedalling is made still more laborious; but then, as I have said before, few of us ever use the pedals for this purpose. The high-pedalling gear on the lightweight machine seemed to make no material difference to the labour entailed in starting.

I am, however, going to criticise some other features. First of all, I wish to point out what I consider an error of judgment on the part of some of the agents or manufacturers in regard to their advertisements—an error which will do more harm than good. I have seen an advertisement which reads thus: "Five to thirty-five miles per hour." In another case "speeds up to forty miles per hour" are boasted. I am not going to question the veracity of such ambitious claims, but I will ask any of you present how long you think a machine of the lightweight class is going to last if it is driven at such speeds?

I have at various times during the last few months spoken of the lightweight as an excellent first year machine. Perhaps I had better explain my meaning. A man buys a lightweight because he feels he can manage it, and for a few weeks he is delighted with it. But there is a fly in the ointment. He is passed by riders of more powerful machines, and—having got over his early nervousness; having mastered some of the intricacies of the mechanism of his mount—he begins to ask himself why he should not go in for something more powerful; and, finally (probably before one season is over), he purchases a larger machine. If anybody had suggested to him before he started motor cycling that such developments would result, he would possibly have ridiculed the idea. But if the inferences from my observations during the last few years do not play me false, such developments will assuredly result.

The Future of Motor Cycling.—

THE DISCUSSION.

Mr. M. J. Tuchmann, who opened the discussion, mentioned cost of upkeep, and said as to the want of handiness and the excessive weight the motor bicycle was certainly heavier than an ordinary push bicycle. The excessive weight was no bugbear nowadays; it had become a reality. The actual difference between a fairly high-powered machine and a 1¾ h.p. F.N. did not amount to more than 30 lbs. He did not agree with Mr. Bell in his remarks about starting; he believed a machine could be run at a low speed, and that in the valve lifter we had an excellent substitute for a clutch; a slight application of the valve lifter brought down the speed to a minimum. If Mr. Bell would try some of the modern machines they would go off with one push of the pedals; he had done it frequently. The modern Triumph and the L.M.C. might be mentioned in this connection. The motor bicycle, he considered, was more comfortable than any other two-wheeled vehicle. A good deal of the vibration could be hindered by having the machine properly sprung. More comfortable seats and footrests ought to be provided. It was strange that manufacturers still thought a saddle was necessary on the motor bicycle; he preferred a seat. An efficiently sprung machine, as far as the back was concerned, had not yet appeared on the market, so far as he knew. Spring forks left a great deal to be desired. Mr. Bell had alluded to police traps; for his own part he thought motor cyclists suffered less in this respect than any other class of motorists. He had incurred a good deal of unpopularity in the past by asking for lightweights when nobody thought them worth having. He was disappointed with many of the modern lightweights. There used to be a Clément-Garrard engine—a very efficient and beautiful one—but it died out. He had a machine with one of these engines, but all the fittments were too light; it was really a pedal bicycle in disguise. Mr. Bell had pointed out the utility of lightweight motor bicycles for pottering about. He had had personal experience of the F.N., and although Mr. Bell was enthusiastic about the high-speed of the engine, he himself was inclined to differ from him. The vibration set up by the engine was very unpleasant. As to the high speed of the engine encouraging vibration, he suggested that the belt be slackened. The transmission of the F.N. was ingenious, but the groove of the pulley in which the belt ran was unsatisfactory. As regarded the use of a clutch to take the place of a two-speed gear, he thought for sidecar work it was useful. As for the hill-climbing powers of lightweights, he had at one time a 1¾ h.p. early Phœnix fitted with a low gear, and it was able to go up most hills; it had a stronger frame than the majority of lightweights. If weight were reduced by fitting light tyres, that was a mistake. As to the vibration bogey (so-called), to his mind it was not a bogey at all, but a very real and serious evil. The vibration was not caused by the engine of the motor bicycle, but by the speed at which the machine was run. Devices were wanted for overcoming this evil. He had yet to see the motor bicycle which would take him through a long run on all varieties of road with the same comfort as a car. He did not think any ingenious arrangement of springs would overcome the difficulty. The average car was not sprung in any extraordinary manner. Mr. Bell had said that smaller engines made less noise; he thought himself they made quite as much as any medium-powered machine.

Mr. E. R. Russell said he had had experience with heavy machines, twin machines, and lightweights. As regarded cost and upkeep, nothing was said about tyres and belts. He possessed a 6 h.p. machine which no one could get down to under twenty-five miles an hour without lifting the valve lifter. When you advanced the spark and throttled down, the machine leaped into the forties. He was not particularly keen on starting by running alongside his machine; after sundry bruises he felt inclined to start by pedalling. He had eventually got over his difficulty by lowering the gear. He did not agree with doing away with pedals altogether. (Hear, hear.) When held up in traffic they were useful; a few strokes of the pedal, and you could start again; they saved getting off the machine and running alongside it and jumping on again. The free engine clutch did not seem to have come into public favour. One thing that had not been spoken about in the heavy machines was the handle-bar control. This was a great boon, and saved a lot of fooling about in the dark, and it was wonderfully easy to manipulate. With regard to the Motosacoche, he heard some men praising it very highly, and he ridiculed them. He was invited to have a short ride to test it. He did so, and instead of going a few hundred yards he went for a run of five miles. It was delightful; he could control the machine perfectly, and he arranged to have one on hire, and went down to Felixstowe on it. The run was accomplished without any trouble whatever. The machine took him up every hill and round the sharp turnings, and no pedalling was required. He bought one for himself, as did also his brother, a man of 16 stones, whose experience was just as satisfactory as his own. Over grease one had to slow down, of course, but there was no sign of side-slip. The machine could be slowed down to any speed or go at twenty-five miles per hour, as desired. He had frequently done 150 miles in one day on his lightweight machine, and he always preferred it to a heavy one. On the question of noise he doubted whether the lightweight machine going at full speed made any appreciable noise. He had not had much experience in riding a Moto Rêve. He thought the lightweight motor was the thing for pleasure.

Mr. Hooydonk's Experiences.

Mr. J. Van Hooydonk said he believed this paper would do more to promote motor bicycling than had been done for a long time. The pastime certainly wanted encouragement. It had been said they were reverting to the old order of things. He had a 1¼ h.p. machine with a low gear; the engine ran fairly fast, and the machine did not side-slip. It was known as a 1 h.p. Minerva, with a 50 mm. bore by 56 mm. stroke, and he had a lot of fun out of it. He used to go to Wisbech—110 miles—at a speed of 22 to 23 m.p.h. It was a very nice mount, and would take him anywhere; he looked upon it as a useful article. Gradually the demand came for higher-powered machines, and riders wanted to climb hills at a good pace. His next machine was a 2½ h.p. 70 mm. bore by 75 mm. stroke. He went up Westerham Hill at 25 to 30 m.p.h. on it; he tried to run it through the traffic in London, but every time he tried to start after stopping, the machine kicked and the wheels skidded. Being in the trade, and having to do business according to the demand that prevailed, it was no use his preaching the other gospel; he had to make heavyweights because people wanted them. Amongst the culprits who were responsible for this public demand he was obliged to mention the press, especially *The Motor Cycle*, which for years preached the gospel of heavyweight big machines. He put a two-speed gear on his machine. Still the cry came for big machines with a high-powered engine. When a man wanted to go touring the motor bicycle was a comfortable vehicle for the purpose, and that end ought to be kept in view. The Auto Cycle Club, too, had encouraged the craze for heavyweights in reliability trials. At the quarterly trials machines were entered, and the one that could go fastest up Dashwood Hill won the prize; it might be a freak machine, whilst a small machine might be better for all-round utility. The Auto Cycle Club was supposed to foster motor cycling, but had it done its best? The same thing obtained abroad as in England. He entered for the Paris to Marseilles Race of 12,000 miles a 3½ h.p. Trimo of 82 mm. bore by 82 mm. stroke, and he encountered some strong hills. In the daily papers notice was only taken of the fastest machines. In the 1,000 miles trial he rode a Trimo with 3½ h.p. engine; he carried two passengers, and went 20 m.p.h., and for the 1,000 miles he consumed nine and a half gallons of petrol. The press again only took notice of the machine that got up first, no matter what sort of freak it was. He was pleased to see they were reverting to the old order of motor bicycle, and probably they would again be making them of a reasonable size, and perhaps we should find some manufacturers devoting their entire attention to them. When they made it good we should see it increase yearly in the matter of refinements and perfection, just as has been the case with the push-bicycle. It would be a gradual process. What Mr. Bell had done by his paper would be one step towards the desired end. From the manufacturers' point of view, he could say it cost almost as much to sell an article nowadays as it did to produce it. A good deal was heard about the variable pulley for making the belt slack or tight. It was well advertised, and people began to think it was right. Against this there was the little device known as the Mabon clutch—a good thing, but nobody heard of it. Why? Because the maker of it was not in a sufficiently large way to boom it; therefore the thing was stagnant.

(To be continued.)

CLUB NEWS.

Newcastle and District M.C.C.

The annual general meeting of the above club will be held on the 18th inst. (Wednesday) at 7.30 p.m., at the Barras Bridge Hotel, Newcastle. All matter for the agenda must be in the hands of the hon. sec. by the 10th inst.

North Islington Conservative and Unionist M.C.

Any motor cyclist wishing to join the above club should apply for particulars to the hon. sec., Henry E. Davidson, 623, Holloway Road, N. An unofficial run on the North Road will shortly be held to find suitable country headquarters.

Coventry M.C.

At a committee meeting last week the date of the annual general meeting was fixed for Wednesday, March 18th. It was also decided to hold the opening run of the year on March 21st, meeting at the Unicorn, Stratford-on-Avon, for photograph, and afterwards proceeding to the Bath Hotel, Leamington, for tea.

Eastbourne and District M.C.C.

A club has just been formed to be known as above, and there was a very good attendance at the first general meeting last week. It is proposed to hold some sports on Easter Monday next, and the club has applied for the use of the Bexhill track. Prizes valued at over £25 have already been promised. The club will be affiliated to the Auto Cycle Union. The hon. sec. is Mr. Frank Crealy, 12, Sussex Gardens, Terminus Road, Eastbourne.

Southend and District M.C.

A complimentary smoking concert was held on Wednesday last in the ball room of the Hotel Victoria, Southend-on-Sea. Capt. J. L. Vivian Millett, chairman of the club, presided; whilst Mr. J. B. Carruthers, A.C.A., hon. treasurer, occupied the vice-chair. Parties from the West Essex A.C., North London A.C., Nore Yacht Club, and Essex Yacht Club attended. The next club event is the whist drive on the 12th inst., and the opening run takes place on the 29th inst.

The Barnoldswick M.C.

A meeting of motor cyclists was held on Wednesday evening last in the Queen's Hall Club Rooms, Barnoldswick, when it was unanimously decided to form a club, to be known as above, with headquarters at the Seven Stars Hotel. Mr. Blackburn Holden, jun., was elected president; Mr. Frank Perry, hon. treasurer; and Mr. Fred Baldwin, 1, Albert Road, Barnoldswick, hon. sec.

Westcliff and Leigh A.C.

A meeting of the Organising Committee of this club will be held at headquarters, the Plough Hotel, Leigh Road, Westcliff-on-Sea, this evening (Wednesday), at 8.30, for the purpose of enrolling members and adoption of rules. Subscription for owners of motor bicycles and tricars 7s. 6d., and cars 10s. 6d. per annum. Communications to be addressed to the hon. secretary *pro tem.*, Mr. F. J. Drury, Hamlet Court Road, Westcliff-on-Sea.

Motor Section of the Brighton Cyclists 'Club.

A successful meeting was held on Monday of last week, when there was a good attendance of members. The club's headquarters are said to be the finest in the South, comprising as they do, billiard, reading, and music rooms, and saloon bar and ample storage room. Various events such as consumption tests, hill-climb, picnics, and inter-club meets are comtemplated, and riders in the district are invited to join this club in order to participate. Subscription for the year is 12s. 6d., which includes affiliation to the A.C.U. and association to the R.A.C. Enquiries should be addressed to Mr. F. C. Wiffen, 193, King's Road Arches, Brighton.

Western District M.C.

A meeting of the Sports Committee of the above club was held at 10, High Road, Chiswick, on Wednesday last, with Mr. Wilson Prosser in the chair. It was mentioned that the president of the club, Mr. G. B. Winter, had presented a handsome silver cup for competition among members only. On the proposition of Mr. Gould it was decided to hold a paperchase on March 15th, starting from the Milford Hotel at 10 a.m. Entrance, 1s. The hares (Messrs. Canham and Kirk) will select a course of about fifty miles.

York County M.C.C.

At the Grand Central Hotel on Thursday last, Mr. H. H Charge read a very interesting paper on "Petrol and th Heavier Spirits, Carburetters, Hints on Economy, Consump tion Trials," which was followed by an interesting discussion

Cambridge University M.C.C.

A general meeting of the above club was held at the Blu Boar Hotel, Cambridge, on Monday of last week. It wa unanimously decided to affiliate to the Auto Cycle Union.

A calendar was drawn up of the fixtures for next term and several valuable prizes are being offered for competition

Leeds M.C.C.

The trophy for the best ascent of Sutton Bank has bee promised by Mr. W. E. Grange, of Harrogate—a prominen member of the Leeds club. This competition is sure to creat a great amount of interest. The trial is fixed for June 28th so as to come between the Leeds to Edinburgh (June 13th and Leeds to London (July 11th) runs.

Lincolnshire M.C.C.

The annual meeting of the Grantham Centre of the clu showed that the centre is in a very flourishing condition Mr. J. G. Bothamley was re-elected chairman, and Mr. Arthur Mettham hon. sec., and both were heartily thanke for their services. Mr. Sentance and Mr. T. A. Palmer ar vice-chairmen, with a strong committee.

Southampton and District M.C.

The first annual dinner of the above club took place at th Southern Café, Southampton, on Friday, February 21st, whe a very enjoyable evening was spent. During the evenir considerable amusement was caused by a humorous discu sion on the comparative merits of magneto and batte ignition. The first meet is to-day at the "Cowherds," at 2.3

Dublin and District M.C.C.

A general meeting of the above club will take place the Waverley Hotel, Sackville Street, Dublin, to-morro evening (Thursday), at eight o'clock, to definitely settle th affiliation matter, and to transact other important busines It is anticipated that Dr. Reginald White, president of th club, will occupy the chair. All interested are invited.

Purley and District M.C.C.

The annual general meeting of the above recently form club will be held at Messrs. Coldrey's rooms, tram termin Purley, on Saturday next, the 7th inst., at 8 p.m. A cordi invitation is given to all motor cyclists interested. Th opening run to Crawley is fixed for Saturday, March 14th meeting place Purley Corner, at 3.15 p.m. sharp.

Lewisham A.C.

The above club, which is essentially a motor cycle an light car club, is to be entirely reorganised. An extraordinar general meeting will be held on March 20th to consider scheme to change the name to that of the South-Easter Automobile Association. All intending members are r quested to send their names to Mr. H. B. Renner, 31, Kir brook Park Road, Blackheath, S.E., so that they may b present at this important meeting.

Middlesbrough and District M.C.C.

A novel proposal is on foot for the purpose of drawing clu members to attend the opening run. The names and nominal entrance fee to be sent to the secretary, and ever rider who reaches the destination selected to be provided wit a dinner free, Mr. W. A. George having promised a donatio to meet the expenses.

Motor cyclists in the district will be welcomed as membe of the Middlesbrough Club. A subscription of 5s. carrie members to November 1st, 1908, entrance fee 2s. 6d. Th hon. sec. is Mr. G. W. Liddle, 116, Parliament Road.

North-west London M.C.C.

The above club has decided to hold a twelve hours' rel ability trial from London to Coventry and back for membe only. This run will start and finish at Jack Straw's Castle Hampstead Heath, on Saturday, May 23rd, and a silver cu will be awarded to each competitor finishing within schedul time.

¶ *The next issue of "THE AUTOCAR" (March 7th) will be the first COMBINED APPEARANCE NUMBER AND BUYERS' GUIDE, and will contain particulars, prices, and illustrations of all 1908 cars on British roads priced at £100 to £600 complete. It will be on sale everywhere, and should be obtained by every motor cyclist who is also interested in the larger vehicle.*

OCCASIONAL COMMENTS

By "IXION."

A New Type of Handle-bar Grip.

It has been realised of late years that the standard pedal cycle type of handle-bar grip is not ideal for motor bicycle work, as increased pace and the backward position usually adopted cause the hands to slip off the grip if they are only lightly clenched, and to hold them tight numbs the fingers of the rider. Most makers consequently employ either a roughened grip, or a grip of large diameter, or a grip with a raised outer edge. Hill Bros., Sheffield, have sent me a very good pair of grips, the outer ends of which are turned down in a little weak horn, which should entirely prevent the hands slipping off the ends of the grip even at high speeds on very rough roads. They are not adaptable to inverted lever control, however.

Adjustable Magneto Contacts.

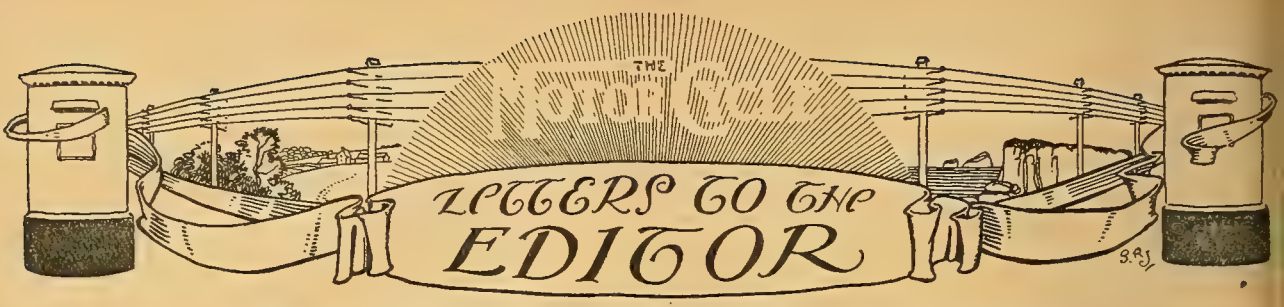
The contact breakers of certain magnetos—mostly of the car type—permit the user to adjust his platina, while most motor cycle magnetos are destitute of such adjustments. Most of us have rather vague ideas as to what is the correct gap between the two platina of an ordinary single-cylinder motor cycle magneto, and in practice most riders do not bother about the extent of the gap at the break so long as the fibre cam is unworn and the two platina are faced smooth and clean. There is no doubt a wide range of gaps, with each of which maximum efficiency is apparently attainable; but the makers recommend a particular size of gap, and the subject of these gaps has been brought to my mind by some recent tinkering with a large four-cylinder magneto, which had one contact adjustable. The difference in the running of the engine was marked as the adjustable platinum was screwed towards the contact on the bell crank or away from it. On most cycle magnetos there is no such adjustment. True, the platinum-carrying studs are screw threaded, but the thread is too short for adjustment, and is designed for attachment only. When the platina become worn, say after 5,000 miles, we have either to replace them or pack them out a little with a thin washer. I am of opinion a substantially made means of adjustment would be of value here, as without it one cannot keep the gap of just that width recommended by the makers of one high-tension magneto—the Bosch to wit, who say the points should separate .4, or just under 1/64 a millimetre.

The Date of the End-to-end.

I think readers will agree that the most vital point about the arrangements for the End-to-end is the early fixing of the date. The trade riders are a minority of the entrants, and they can get away from their work any time at comparatively brief notice. The other sixty or eighty men, who add so much to the interest of the trial, and prevent a very heavy deficit being recorded against the promoting club, are amateurs—young men making their way in sundry professions and businesses. For them it is always a difficulty to obtain the three consecutive weeks' holiday which the trial demands; and the sole help the A.C.U. can give them towards obtaining it is by fixing the actual days the trial will occupy as soon as possible. I therefore beg the committee to fix and publish the date immediately. This will also assist club secretaries in arranging their programmes so as not to clash.

Other Points in the Regulations.

There were two weak points in the regulations of this trial in 1906. One was the rule that no adjustments were to be made in garage at lunchtime or overnight. The officials were not numerous enough to see that this rule was sternly carried out, and on some occasions, owing to only one car being used and the frequent tyre troubles it encountered, the officials did not turn up in time. The consequence was that the more honourable competitors observed the rule strictly, and the less scrupulous acquired much advantage by eluding it. A second flaw in the arrangements lay in the inequality of the sections. Some controls were but seven miles in length, while others were nearer fifty miles. This greatly accentuated the ever-present factor of luck. If a man punctured, for instance, in a short control, he was bound to lose a great many marks, whereas if he punctured on a long control the margin between maximum and minimum time was so large that he had ample opportunity to catch up time again. The controls need equalising. Again, more value should be paid to hill-climbing. Men won gold medals last year who failed to make a clean ascent of any of the eight or nine trying hills along the route. Interested spectators, meditating the purchase of a motor cycle, saw Jones make a hopeless botch of climbing some fairly easy hill down south. The next week they read in the papers that Jones reached John-o'-Groat's with flying colours, lost no marks, and was awarded a gold medal. Such incompatibilities hold the trial up to ridicule. Riders cannot be timed, observed, and rewarded, or penalised, on every hill, but the officials ought to watch every man at least upon such hills as that out of Bodmin, the Lamb Hill near Taunton, Redhill outside Bristol, the twisty ascent just north of Kidderminster, the sharp rising corner near Hodnet, Shap Fell, and the Pass of Killiecrankie. And no man who pedals or fails on two of these really simple ascents ought to receive a gold medal. There were some gold medallists in 1906, I fancy, who failed on every single one of them, and on some still more contemptible grades as well. The A.C.U. always needs more officials than it has at hand. The results of the trial would be more interesting if half a dozen keen amateurs on good machines would forego the delights of competing, and assist the judges in the capacity of marshals. If any riders have suggestions to offer, now is the time, as the regulations will soon be completed, and a three-figure entry is expected.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Exchange Transactions.

[3146.]—I notice in your issue of the 22nd ult. an appreciation by a motorist of the Rex Co. May I now be allowed to say a little on the question?

Early in November last year I bought a Rex de Luxe through their exchange coupon, representing fifty guineas, and I must say I am satisfied with the machine, but in less than a month from the date of purchase they suddenly reduced the price to forty guineas for the same class of machine. I am a sportsman in that I do not grumble for not having waited the month out till the price was reduced, but what I distinctly do grumble at is that when I wish to part with the machine I shall not be able to get the proper price for it, due to the Rex Co. having marketed the same machine at a ridiculous price for clearance purposes. BE 498.

[The reduction is inevitable when new patterns come on the market.—ED.]

The End-to-end Run.

[3147.]—I recently noticed a paragraph in "Current Chat" *re* the End-to-end Run, suggesting that one of the stopping places should be Moffat instead of Lockerbie. Might I be permitted to draw the attention of the promoters to Dumfries as a suitable stopping place. There is plenty of hotel accommodation, also a garage, and there is also something to see when in the town, in the way of Burns relics, etc.

The road is good from Carlisle on to Beattock, where it joins the main road again. The route would be Carlisle to Annan seventeen miles, Annan to Dumfries seventeen miles, Dumfries to Beattock nineteen miles. No hills on the road to bother about and the surface is good.

J. M. M'LEAN,
Hon. sec. Dumfries and District M.C.C.

[Will the Burns relics be on view after 7 p.m.? as the riders do not usually reach their sleeping places before that time. ED.]

Outside Flywheels.

[3148.]—With reference to the correspondence which has been taking place for some time past in your columns *re* "Outside Flywheels," I trust I may be permitted to agree with Mr. H. R. Ricardo's views as expressed in his letter No. 2997.

I may say that I ride a 2½ h.p. Fairy, which embodies the outside flywheel with what I consider the best system of joining, from an engineer's point of view, namely Morse standard taper on shaft and Woodruff patent key, this method to my mind being far ahead of the old parallel key, which is usually found to be incorrectly designed and fitted. It would be interesting to hear the Fairy Co.'s remarks on this subject.

In conclusion, I would say that I am not connected with the above company in any way, my present mount being my ideal as regards lightweight machines, as it embodies the following points: Lightness, low cost (both first cost and upkeep), ease of control, starting, etc. (magneto ignition), and general handiness.

Although from what I have seen of the new 1908 model on the road being tested, I expect shortly to be in the position of most motor cyclists at this time of the year, namely, examining the state of my exchequer with a view to the purchase of another faithful friend. M. MARSHALL.

Silence.

[3149.]—Your correspondent, Mr. G. D. Monice, has evidently hit the mark when he says that the combined efforts of *The Motor Cycle* and the A.C.U. have not yet cleared the road of all the noisy motor cycles. However, I cannot give him much credit for the silencer he describes which has taken him two years to think out, whatever he or anyone else says. If he has to push his gases through twenty four holes only ¼in. in diameter there must be back-pressure on the piston. It is a well-known fact that to avoid back pressure the area of outlet holes must be about equal to that of the exhaust pipe. If in Mr. G. D. Monice's silencer this is the case, he must have a very small exhaust pipe—much too small to successfully carry away the exhaust gases from any petrol engine. I hope your readers will take this into consideration for their own benefit before attempting to make what appears to be a cheap silencer.

G. ALDINGTON.

Sidecars.

[3150.]—With regard to the correspondence relating to sidecars now raging in your columns, I think I cannot do better than give you an abstract from a letter recently received from a friend who had taken that very dangerous step to go in for a Mills and Fulford fixed sidecar.

"My brother drove off as though he had been used to it all his life, so I sat in the sidecar, and he drove my engine and, mind you, he had never been over my saddle till then and we had a decent little spin over 3in. of soft soap and filth, which was so bad that even the cyclists were walking and the machine was as steady as on a dry road. Marvellous I reckon, when you consider that the road was Chiswick Brentford, and Hammersmith, to say nothing of a strange machine and sidecar. We had it adjusted so nicely that he could ride with hands off, and there was not the slightest tendency to pull to the side or divert from a straight line."

Needless to say, I ride a similar sidecar, and have nothing but praise for it.

Personally, I consider the steering question a bogey, and as regards tyres, I hope to use the same cover this season as last on the sidecar. CHAS. STEWARD.

Non-skid Tyres.

[3151.]—I have read with interest the various letters which have appeared in *The Motor Cycle* dealing with non-skid tyres and side-slip. During the last few months almost every non-skid tyre on the market has had its good points laid before the readers of this paper by various correspondents but in my opinion the only safe tyre to ride in winter has never had one word said in its favour. I have waited for some riders with more able pens than mine to take up the cause of the twin-tyred wheel, but perhaps they are all like me, rather shy, for fear of being accused of having an axe to grind.

Last summer I had to ride some twenty miles night and morning. As we had a very wet season, I had many reminders of what I should have to put up with during the winter. Other years I have ridden non-skid steel studded tyres, but always had trouble on stone setts, so last year decided to procure a very low-built machine, thus hoping to overcome side-slip. Alas! there were times when no ordinary machine could be driven with safety (in the dark) over greasy road

vith short steep hills and bad corners, to say nothing of tone setts and tramlines, consequently I was compelled to rder a non-skid tyre. Before this was fitted, I saw a rider n a twin-tyred machine pass up the street at sixteen to ighteen miles an hour, on a surface that I knew meant lisaster to any single-tyred wheel fitted with steel studs. The same night I decided to have a twin-tyred machine, and ot it delivered within a week. Since then I have ridden n dark dirty nights, over some of the vilest roads ever met vith, but without any fear of side-slip; in fact, the state of he roads never troubles me now, whereas previously I used o dread having to face greasy roads on a dark night.

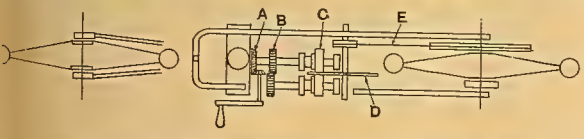
It may not be out of place to say a word in favour of the nachine, which you all know is the Rex de Luxe, fitted with he Roc clutch. This machine is built very low, but not so ow as the one I rode previously, so that there is little doubt nat the twin tyres are really what prevent side-slip.

The reliability of the engine and everything connected with are all that could be desired; the only trouble I have had ll the winter has been due to mud getting into the live axle earings of rear wheel. I feel sure there are lots of riders ho can endorse what I have said, for there are plenty of nese machines on the roads this winter.

W. DANN.

Variable Gears for Motor Bicycles.

[3152.]—Having read Mr. Hooydonk's interesting paper on Variable Gears for Motor Bicycles," and also several letters nce from readers of your valuable paper, I should be glad you would find room for this, as I claim to be the pioneer speed gears, footboards, and no pedals on motor bicycles, illustration of which you kindly published in your paper 1904. Motor bicycles were very young then, and many ousands of your present readers did not see that; but it as the ideal motor bicycle gear then, and there has been thing to beat it since. Although not wishing to blow my vn trumpet, it will do what your readers say they want. is a compound or grip friction gear, and the only one ithout the least end thrust. It has a very powerful grip ith a slight pressure, and it is infinitely variable between o points. It is always in gear when changing speeds; it nts no other clutch, and yet a free engine can be obtained any speed. It needs no gear box; it can be started and



A. Bevel gear. B. Gear wheels. C. Friction rollers.
D. Friction drum. E. Belt or chain.

iven exactly like a car, and much better when changing eeds; it glides off without shock or jar; it can be driven ith chain or built to suit one's fancy. The engine can be ways run at one speed, and it can be made to adjust the eeds automatically if required. The speeds and free engine n be controlled by the feet; nothing can be made simpler. he engine being set at right angles to the frame, the gear driven direct off the engine-shaft, with a counter-shaft in ace of bottom bracket spindle, and chain or belt from that road wheel. I can guarantee that a 2 h.p. engine with is gear will take one anywhere. I have tested this gear both light and very heavy work, which it does equally ell, and there is practically no wear. For motor cycles it eighs but a few pounds. I might have made many of these ars, but have had neither the time nor the capital to put on the market, but have been making them for heavy ork, and have a number of them which have been running ily for nearly five years. I have it also on cycles and cars, of which can be seen by anyone interested.

G. FREESTONE.

[3153.]—Your correspondent "F.N." is quite wrong in s deductions. The public might be misled if these were rmitted to go unchallenged. "F.N." says: "A free engine es not always bring desired easy manipulation in traffic, d hand starting—so much talked about lately—is a snare, most practical engineers will confirm." In reply—

(1.) The statement made above operates in exact contra- ction to the ideas accepted by motor engineers, a clutch with petrol engine being found an indispensable factor as a means of traffic regulation, unless one prefers the irksome process of restarting one's engine after momentary stoppage.

(2.) Hand starting. Any practical rider or motor engineer will question the sapiency of such a suggestion as "F.N." makes. In justice both to your correspondent and myself (as the patentee of the hand starting system applied to the live axle of a motor cycle), I am ready to believe that hand starting, applied direct to the engine-shaft or by other equally inconvenient means, undoubtedly does prove an unhappy and dangerous method.

It seems unfair that a firm who have so successfully exploited a master patent covering this one vital point of motor cycle progression should suffer in any degree from the mischief of a haphazard statement.

Fortunately for myself and my firm, the Roc hand-starting principle has proved itself beyond reproach and criticism, and is undoubtedly contributing in a marked degree towards the expansion of the motor cycle industry.

ARTHUR W. WALL.

The Future of the Electric Motor Bicycle.

[3154.]—In a letter on this subject in *The Motor Cycle* of February 26th, "S. H. M." mentions the want of an electrically propelled bicycle. I myself am interested in this class of machine, and have been for some time on the look out for the fulfilment of Edison's promise to give us a complete storage battery for driving cars, etc. Some time ago this subject was mentioned in the daily papers, and through the great kindness of Mr. A. C. Shaw, of the *Electrical World*, I discovered that these batteries were being manufactured in Germany by a firm who have the rights of making them, and that cars were being driven by them satisfactorily in Berlin. On writing to this firm in Berlin, they put me in communication with their London agents, Messrs. Marples, Leach, and Co., who tell me that they are making these batteries. The question now is whether these batteries can not be built into bicycles, tricars, etc., and how long they will last, and whether they would be satisfactory for hill-climbing. I am writing to Messrs. Marples on the subject, and hope that they can see their way to produce a small, light, cheap, and efficient battery for this purpose.

CLARENCE J. WARD.

Two-speed Gears.

[3155.]—May I express a hope that such of your readers as are using two-speed gears will give us the full benefit of their experiences. I understand that the Phelon and Moore gear is wholly satisfactory for riders who adopt a chain drive, and that, to this extent, the problem has been solved.

The Roc gear looks very well on paper, but seems not to have faced the ordeal of a formidable tour or public trial. Mr. B. H. Davies's promised experience of this fitting will be awaited with interest. If the gear proves efficient and stands hard wear well, it will mark a great advance. The live axle principle is excellent. Satisfied users of the Roc *clutch*, like myself, would be glad to hear that the two-speed gear is something more than a success on paper.

The best trial of a two-speed gear which I have read up to date is that of the Vindec device as used by Mr. Howarth on a twin for his tour to Savoy, etc. The gear is evidently a very practical affair. Unfortunately, Mr. Howarth had not to confront the more serious climbs mentioned in my account of the "ideal tour" (which in part only he undertook). Thus the ascents of the Cols de Megève and des Mosses were easily effected on the second (not low) speed of my last 8 h.p. De Dion car, with passenger and baggage aboard! And my single-geared twin 5-6 h.p. Bat mounts these passes, in fairly cool weather, with great ease. A much more exacting trial of this gear is requisite. It is a pity Mr. Howarth did not turn aside at Villeneuve and have a shot at Mont Caux!

I shall be trying some make of two-speed gear out here (Switzerland) later, but for the present am waiting to learn something more about the devices offered to the public before making my choice. Many of your readers beside myself must be awaiting the reports of users whose opinions carry weight.

Of one thing I am quite convinced: I buy no more motor bicycles which lack a two-speed gear. Too much trick riding is required out here if the machine is single-geared.

Vaud. E. DOUGLAS FAWCETT.

A Gap in the Market.

[3156.]—With reference to "Ixion's" note, "A Gap in the Market" and the letter from "Phil" in your correspondence columns, may I remind you that about last June you published an illustration of a machine I had specially built by E. A. Crowsley, of 167, Victoria Street, S.W. This machine was built for use with a sidecar, and had a 3½ h.p. Fafnir engine, Planet two-speed gear, and chain drive. The frame is somewhat out of the ordinary, having parallel tubes from the front of the engine to rear fork end, making a very strong construction, and giving plenty of clearance for everything. The chain is, of course, entirely inside the frame, and, if desired, a 3in. tyre with a Parsons non-skid might be used. The machine has been in constant use since last spring and is going strong at present. The engine and gear are admirable, and so far from there being any undue harshness through the chain drive it is sufficient to say that the tyre (2¼in. wired-on Dunlop) has not been re-treaded and looks good for another 500 miles.

All the frame parts and the sidecar were supplied by Chater Lea. I recently gave two riders sketches to enable them to build similar machines, so that there is undoubtedly a demand for such a type, and of course *The Motor Cycle* can be depended upon to notice it. BANDSMAN.

[3157.]—With reference to "Ixion's" article in a recent issue entitled "A Gap in the Market," and also the letter signed by "Phil," it might interest your readers to know that we have supplied fittings for several machines on the lines indicated.

One such machine was built by Mr. R. Barrell, of 393, Southwark Park Road, London. This was fitted with a 9 h.p. Jap engine, our two-speed gear box, and chain drive. It was fitted with a side car and shipped, through a well-known export house, to South Africa.

Messrs. Baldcock and Co., of Tamworth Road, Croydon, are at present building a machine on very similar lines, which will also be used with a side car.

We are endeavouring to obtain a photograph of the machine built by Mr. Barrell, and will send this on to you in the course of a few days. CHATER LEA, LTD.

["Ixion" wrote of twin-cylinder machines on the lines indicated as not being found in motor cycle makers' catalogues as a *standard*, and in that contention he has been fully borne out with one exception, viz., Brown Bros.' Brown twin-cylinder with chain drive and two-speed gear.—ED.]

Auto Cycle Union A.G.M.

[3158.]—A few lines to the newly affiliated clubs may not be out of place. The annual general meeting may be considered the most important of the year for many reasons, and it is to be hoped that every delegate will make it convenient to attend. The first matter of importance is, "Don't be late." The time is 3 p.m.

Cheap tickets may be obtained at most railway stations or booking offices which will be found suitable for this meeting. Arrangements should be made beforehand if possible.

In due course all delegates will receive an agenda paper, and this should be carefully considered at a committee meeting of their respective clubs (if possible), and notes made of those resolutions they are to support and those they are to object to.

To those delegates who are unable to get to this meeting I would suggest that they delegate their power of voting to some councillor they know, but be certain that his views are the same as yours, otherwise he may vote the wrong way. Those who have not previously sent proxies should read carefully the rules in the "Book of Rules," which every councillor should have. The chief items are :

(1.) Inform the Auto Cycle Union that you have appointed Mr. —— as your substitute.

(2.) This information must reach the A.C.U. offices not later than 5 p.m. on the day preceding the date on which the council meeting is to be held.

(3.) Make arrangements with your substitute beforehand that he is going to the meeting, and that he will act for you.

Let us keep pegging away until we are at least 20,000 strong. JNO. H. HALL.

The Balancing of Petrol Engines.

[3159.]—A friend of mine possesses a 3½ h.p. Kerry with which he uses a sidecar, the gear being about 6-1. It was noticed that any attempt at driving the machine up to or over legal limit resulted in the most excessive and unpleasant vibration being felt in the feet of the sidecar passenger. It had previously been noticed that when the engine was turned so that the piston was at or near the top of its stroke it would when released fall by itself to the bottom of the cylinder. The engine was taken to pieces and the weight removed from the flywheels by drilling a number of holes near the crank pin, *i.e.*, opposite the balance weight. Result, vibration complained of has disappeared, and the engine will run more slowly than before, being now better balanced.

On examining my Quadrant engine I found it to be suffering from the same complaint, so treated it the same way with equally satisfactory results. The Brown engines have the flywheels drilled for apparently the same reason. I now have a 1908 3½ h.p. Triumph, and find that this piston is even more out of balance than the Kerry and Quadrant. Can anyone tell me why our best engine makers continue to make engines which are balanced in this way? Is there a reason for not properly balancing the weight of piston, connecting rod, and gudgeon pin, or are we to believe the makers have never given the matter the thought and attention it seems to deserve? SHAZBAZZIK.

Magneto Ignition.

[3160.]—With regard to the article in your issue of February 9th on magneto ignition, my experience has been that difficulty in starting, provided the magneto is properly set, is often due to a variety of other factors when the magneto is blamed.

Last year I had been riding a motor bicycle with accumulator ignition which was difficult to start, and could not be made to go slowly however the levers were adjusted, and I sold that machine and bought one with magneto ignition which latter the previous owner could not start at all.

I timed the magneto to give maximum spark when the lever was half advanced, and was then able to start without much difficulty, but firing was somewhat irregular. I next adjusted the points of the sparking plug so that they were almost touching, after which the machine would always start at walking pace, and would continue at that pace, if required, when I was in the saddle—and, incidentally, it would do 35 m.p.h. when required.

For easy starting and flexibility with magneto the following points are all that are necessary: (1) Proper timing; (2) very close plug points; (3) sufficiently heavy flywheels; (4) correct carburation. S. L. BURNARD.

EXPERIENCES WANTED.

"Sarolea" would like readers' experiences of the 4 h.p. and also the 6 h.p. twin Sarolea engine, particularly with regard to overheating, which type of carburetter gives the best results and economy in petrol consumption.

"W.G.," Pontypridd, would like readers to tell him which single-cylindered motor bicycle in their opinion gives the best results for sidecar work with belt transmission.

"F.M.N." would like readers' experiences of Elastes filling in motor cycle tyres, particularly with regard to wear and resiliency.

Replies sent to "B. G.," Drayton Park, N., have been returned through the Dead Letter Office. Will he kindly forward complete address?

SUMMARY OF CORRESPONDENCE.

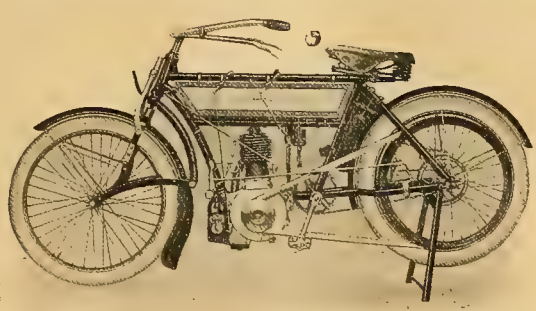
Will any firm in the North of London who has a good twin cylinder motor bicycle for hire communicate with A.L.R. c/o the Editor?

Mr. E. J. Hardy, Bishop Street, Coventry, has sent us a copy of his latest catalogue, which contains illustrations and descriptions of a very full range of motor specialities. Motor cyclists will find many items which will interest them, and a copy will be sent on application.

VINDEC · SPECIAL

THE · MOTOR · CYCLE · OF · MERIT.

S.B.T. Co LTD



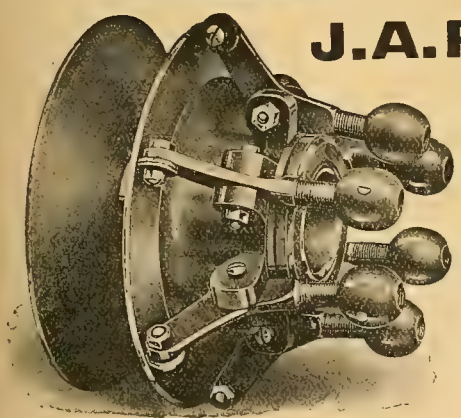
Model H. 3½ h.p. The Gentleman's Machine.

There is nothing better made! And as for speed—no machine of equal power can live with it. For the discriminating buyer, whom nothing but the best will satisfy, the Model H will prove its claim to be "The Motor Cycle of Merit."

Our profusely illustrated "Book of the Vindec Special" is interesting reading—sent free upon receipt of request.

SOUTH BRITISH TRADING Co LTD
13 & 15 WILSON ST, FINSBURY. LONDON. E.C.

"J.A.P." MOTORS.



J.A.P. Patent Variable Speed Pulley.

No wearing parts.
Runs as a solid pulley on top speed.
Absolutely no end thrust on engine shaft at any time.
Change speed effected exceedingly smoothly.
The best variable set yet brought out.

J.A.P. Patent Carburetter

gives very easy starting. Slower and smoother running. Uniform mixture at all speeds. No sliding pistons or working parts. Marvellous simplicity and efficiency.

CATALOGUES FREE.

John A. Prestwich & Co., 1, Lansdowne Road, Tottenham, London, N.

Telephone—1822 Tottenham. Telegrams—"Prestwich, Tottenham."

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle." Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given, c/o *The Motor Cycle*, 20, Tudor St., E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

HALIFAX Motor Exchange. — As the largest dealers in Rex machines, we have a few 1907 shop-soiled machines at clearance prices. Great bargains. Exchanges in all 1908 Rex and N.S.U. models

HALIFAX. — 1907 3½ h.p. Rex, 26 by 2¼ Continentals, spring forks, soiled; 19 guineas, November price £26 5s.

HALIFAX. — 1907 35 guinea twin Rex, spring forks, soiled; £23; you save £13 15s.; we gain your confidence.

HALIFAX.—1907 magneto twin Rex, unridden, November price, £42, our price £28 10s.; another £13 10s. saved.

HALIFAX.—Shop-soiled 1907 black and gold Rex de Luxe, twin tyre, magneto, Roc clutch; 1908 price £55 13s., our price £35; you save £20 13s.; we cannot keep this up indefinitely, and only a Rex agent can do it.

HALIFAX. — 1908 Rex de Luxe, Roc clutch, two-speed gear, magneto; 55 guineas; liberal exchange.

HALIFAX. — 1908 Rex featherweight, magneto, magnificent hill-climber, recommended; 25 guineas.

HALIFAX.—1908 3½ h.p. N.S.U., magneto, just delivered; £40; allow £25 for last year's model.

HALIFAX.—1908 5½ h.p. twin N.S.U., magneto; £52; allow £25 for 1907 single magneto, in good condition.

HALIFAX Motor Exchange. — Extended payments, exchanges; high-class machines purchased for spot cash. — 16, Westgate, Halifax. Telephone, 766.

MANY HAVE PROFITED

by our warning in last week's "Motor Cycle" as to the danger in delaying longer the Selection of a 1908 mount for **EASTER.**

If **YOU** have not chosen a machine **LET US ADVISE YOU.**

As we handle all the most popular makes, it is not to our interest to push one machine more than another. We recommend that which suits the enquirer's individual requirements.

Have you considered these:

TRIUMPH.
N.S.U.
VINDEC SPECIAL.
REX.
ROC.
BROWN.
F.N., 4-cyl. and Lightweight.
MOTOSACOCHE.

They can be seen running here, or we will furnish all details.

We are daily receiving second-hand Motor Cycles in exchange for new ones. If you do not see a machine on the following list that interests you, let us know your requirements. These are sold under signed **CERTIFICATE OF FITNESS.**

	£	s.
Triumph, magneto, 3½ h.p., 1907	35	0
Triumph, magneto, 3 h.p., 1906	30	0
Quadrant, magneto, 3½ h.p., 1907, soiled	33	0
Triumph, 1906, Replated and Enamelled	30	0
Brown, 3½ h.p., 1907	28	0
Vindec Special, 5 h.p. **Twin,** 1907	35	0
F.N. Lightweight, 1¾ h.p., 1907 ..	25	0
Singer, 3½ h.p., free engine, magneto	22	0
N.S.U. Twin, magneto, 4 h.p., 1907	30	0
Rex de Luxe, 5½ h.p., **Twin** ..	26	10

The following are in good running order:

2 h.p. **Minerva**	5	10
3 h.p. **Buchet**	7	0
3 h.p. **Fafnir**	8	0
3 h.p. **Quadrant**	8	0
2¾ h.p. **Excelsior**	9	0
3½ h.p. **Rex**..	11	10
5 h.p. **Twin Antoine**	15	0
5 h.p. **Twin Rex,** perfect.. ..	17	0
4 h.p. **Excelsior** water-cooled **Tricar**	18	0
7 h.p. **Phœnix Quadcar,** water cooled	35	0

A few **new covers** 26in. × 2½in. at **12,6 each.**

TWO-SPEED GEARS with Roc clutch for high-power Motor Cycles. Give particulars of your machine, and we will quote you per return. **Immediate Delivery.**

PREMIER MOTOR AGENCY,
Aston Road, BIRMINGHAM.
Telephone: 4310. Telegrams: "Primus," B'ham.
The World's Motor Cycle Emporium.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Holds the finest and largest stock of second-hand cycles in the world. 300 to select from.

HALIFAX.—Fine twin Rex, Greenwood's Leeds-London record holder, registered, guaranteed; £22 10s.

HALIFAX.—1907 5½ h.p. twin N.S.U., spring forks, 2½ tyres, regular Beau Brunell, lovely machine; £27 10s.

HALIFAX.—6 h.p. Twin Antoine, 1907 machine, spring forks, without fear or favour; £25.

HALIFAX.—3 h.p. Givaudan, vertical engine, spray, 26 wheels, nearly new; £14 10s.; splendid climber.

HALIFAX. — 3½ h.p. Minerva, spray, girder forks, 25 by 2¼ Clincher A Won, begging at £16 10s.

HALIFAX.—4 h.p. 1907 Jap, 85 by 85, Chater-Lea, 24 by 2¼ tyres, almost equal to new; £23; torpedo tank.

HALIFAX.—3½ h.p. Phelon and Moore magneto, spring forks, low frame, two-speed gear, climbs anything; £29 10s

HALIFAX.—3½ h.p. 1907 Rex, fitted with Crypto two-speed gear and Montgomery flexible sidecar; complete, £25. without sidecar, £21.

HALIFAX.—3½ h.p. light low Rex, spring forks, 26in. wheels, Longuemare; £12 17s. 6d.; snap this.

HALIFAX. — 6 h.p. twin Rex, 26 by 2¼ Clincher A Won, spring forks; £22: £16 allowed for powerful 1907 machine.

HALIFAX. — 1906 3½ h.p. Rex, specially good condition, 26 by 2¼ Clinchers; £16 5s.

HALIFAX. — 5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £27 10s.

HALIFAX.—2 h.p. Humber, spray, trembler, chain drive, splendid climber, cheap, £9 10s.

HALIFAX. — 1907 Twin Minerva, spray, non-skid to rear, long low mount; £24 10s.

HALIFAX.—3½ h.p. Simms, vertical engine, magneto ignition, easy starter, reliable; £17 10s.

HALIFAX. — 1907 Twin Rex, almost equal new, no complicated speed gears required; £22; buy now, to-morrow may be too late.

HALIFAX. — 4 h.p. Antoine, 26 wheels low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £19 10s., perfect order.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, and sidecar; £27 10s.

HALIFAX. — 5 h.p. Rex, Longuemare trembler coil, Clincher tyres, Fish-back belt; no offers; £16 15s.

HALIFAX.—1907 Rex de Luxe, magneto, twin tyre, Roc clutch, spring forks, £27 10s.; exchanges wanted.

HALIFAX. — 1907 N.S.U. Lightweight, magneto, almost as new, stand, splendid climber; £22 10s.

HALIFAX. — Very fine 1906 Rex, spring forks, low frame, Longuemare, 2¼ tyres; £15 15s.

HALIFAX.—1907 3½ h.p. Minerva, 26 by 2¼ tyres, very fine order; £22.

HALIFAX.—1907 3½ h.p. Rex, magneto, two-speed gear; £25; condition and running order everything to be desired.

HALIFAX Motor Exchange. — Cash, exchange, or extended payments. See Tricar list. Telephone, 766. High-class machines purchased for prompt cash. — 16, Westgate, Halifax.

MOTOR BICYCLES FOR SALE.

MAUDE'S List of Second-hand Motor Cycles at present on hand.

MAUDE'S.—3½ h.p. 1907 Triumph, just as new; a bargain at £35. We can highly recommend this although rather dear.

MAUDE'S.—2¾ h.p. Vindec Special, like new, magneto; £17.

MAUDE'S.—6 h.p. Rex de Luxe, magneto, twin tyres, Roc free engine, like new; £27.

MAUDE'S.—5 h.p. Rex, spring forks, tremblers, 1907 model, like new, including tyres; £22.

MAUDE'S.—Twin Rex, 2¾in. tyres, special machine, a beauty; £22.

MAUDE'S.—6 h.p. Rex, spring forks, beautiful condition; £19, our price.

MAUDE'S.—Clarendon, 3½ h.p., M.O.V., spray, good tyres; £10.

MAUDE'S.—2¾ h.p. De Dion, spray, long handle-bars, £10; 2 h.p. Antoine, £6.

MAUDE'S. — Bradbury, 2 h.p., vertical, very good tyres; £8.

MAUDE'S.—2 h.p. Minerva, spring forks, £8; twin Minerva, 1907, splendid condition, £25.

MAUDE'S.—Twin 6 h.p. N.S.U., very powerful, new front tyre; £29.

MAUDE'S.—Beautiful 1905 Rex, in perfect order and condition; £10.

MAUDE'S.—Exceptional Twin Minerva, 1907 model, special 2½ tyres, non-skid rear, splendid mount; £28.

MAUDE'S. — Ideal lightweights. Machines we can recommend as lightweights; 2 h.p. Minerva, £8; Ariel, 2½ h.p., £8; Mitchell, 2¼ h.p., £6.

MAUDE'S.—3½ h.p. Excelsior, M.M.C. engine, perfect, tyres practically new; £10.

MAUDE'S. — Minerva, 2 h.p., spring forks, £8; M.M.C., vertical, spray, 26in. wheels, trembler, £10.

MAUDE'S.—3 h.p. Noble, vertical, spray, very good tyres; £10.

MAUDE'S.—3 h.p. Fafnir, 26in. wheels, low built, long handle-bars, spray; £12.

MAUDE'S.—Humber, 2¾ h.p., a beauty, £9; 2¾ h.p. Kerry, spray, low built, B100 saddle, £9.

MAUDE'S.—Clarendon, 1906 model, 26in. wheels, ball bearing engine, enamelled green, absolutely like new; £15.

MAUDE'S. — 6 h.p. Ariel-Jap, non-skid rear, new Continental front, guaranteed to climb 1 in 6; £25.

MAUDE'S.—Minerva, 2½ h.p., spray, very good tyres; a machine we can highly recommend; £12.

MAUDE'S. — 1906 Rex, footbrake, footboards fitted, an exceptional climber; £15.

MAUDE'S. — Twin Werner, 3½ h.p., a splendid climber, and very reliable; £18.

MAUDE'S.—Jap, spray carburetter, as new; £9.

MAUDE'S.—3½ h.p. M.M.C., vertical engine, 26in. wheels, spray carburetter, good tyres, powerful; £12.

MAUDE'S. — Rex, 26in. wheels, 1905 model, perfect; we guarantee this machine to be as new in every way; £15.

MAUDE'S.—Rex, low built, 26in. wheels, spray, trembler, good tyres, and a very fine puller; £12.

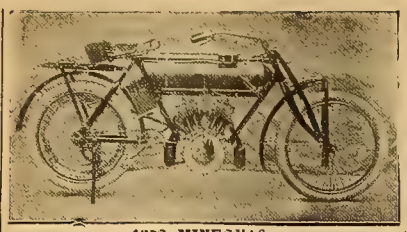
MAUDE'S. — 2 h.p. Quadrant-Minerva, spray, V belt, a very good lightweight; £8.

MAUDE'S. — Quadrant, new cylinder fitted, just overhauled, spray; a pity to miss this at £10.

MAUDE'S.—Lloyds, 2¾ h.p., B. and B. carburetter, £12; Rex, 3½ h.p., trembler, good tyres, Phœnix two-speed gear, fine puller, £15.

MAUDE'S.—Brand new 1908 Twin 7-8 h.p. Minerva, delivery yet to be effected from makers, guaranteed perfect; listed at £45, accept £36 spot cash; no offers.

MAUDE'S Motor Mart, Powell Street (behind Victoria Hall), Halifax, guarantee all the above to be in perfect running order, and ready for the road before delivery.



1908 MINERVAS.

Any make of motor cycle supplied on best terms for cash or exchange.

BEST TERMS. EARLIEST DELIVERIES.

NOTE. All 1908 Minervas sold for cash are fitted with 2¾in. Clincher "Dreadnought" tyres at no extra charge, and twins with R.O.M. synchronized contact breaker no extra.

MOTO REVES.

35 gns., twin cylinder, magneto ignition, latest principles, light as a dart.

TRICARS.

RILEY TRICAR, 4½ h.p., water-cooled, two speeds, coachbuilt as new £38
REX TRIETTE, 6 h.p., cantilever seat 28
REXETTE, 8 h.p., two speeds, wheel steering, very fast 39

TRICYCLES.

ASTER, 2¾ h.p., very good tyres, new cylinder and piston £5
DE DION, genuine, w.c. head, long carburetter 6

QUADCARS.

DE DION, two speeds, w.c. head, excellent general condition, Long. spray carb., 2¾ h.p. £10
DE DION, 2¾ h.p., w.c. head 6
All guaranteed in good running order.

BROOKS "STRATEX"

belting. Note the prices.

⅝in.	8/6
¾in.	10/6
1in. (4 ply)	15/6
1in. (5 ply)	17/6

Per 8ft. 6in. length.

C.A.V. ACCUMULATORS.

All guaranteed twelve months by the makers.

NOT THROWOUTS.

Rex size	16/6 each.
Ariel size	15/9 "
Humber size	15/- "
Minerva size	17/- "

7/- allowed for your old accumulator in part payment.

ACCESSORIES.

Brand new twin trembler coil	12/6
Osborne free engine clutch	25 -
Gear box, two speeds and reverse	£4
Car chassis for wheel steering	£4
Continental extra slack tyre 26×3, specially strong, unused	£3
Large car headlight	£2
Pair Salsbury Flare car haedlights, new ..	£4
Large headlight, suit tricar (wants slight repairs)	17 6
Beautiful forecar attachment	£5
Tradesman's trailer, new tyres	£2
Vim stands, suit Rexes	6/-

We are commencing a series of Auction Sales for Motor Cycles and Accessories, to be held at Powell Street (behind the Victoria Hall) on the first Thursday in the month, the first to commence on Thursday, March 5th, and entries may now be received for this sale, the charges being seven and a half per cent. sales, and 2/6 no sale. Cleaned up free of charge.

NOTE.—We cannot accept any motor cycle which is not guaranteed to be in perfect running order in every respect, and we guarantee that every one sold is perfect, and they may be seen on the road on the Wednesday previous to the sale.

ENTRIES

for the first sale may now be received, and offers may be sent per post for any particular machine, list, of which we shall be pleased to send upon receipt of penny stamp.

AUCTIONEER.—MR. SYDNEY CLARKSON, Town Hall Chambers, Halifax.

Any further particulars may be had upon request.

Note the New Address:

MAUDE'S MOTOR MART,

POWELL STREET, HALIFAX.

(Behind the Victoria Hall).

Telephones: 433 day.

MOTOR BICYCLES FOR SALE.

ANGLIAN Motor Cycles, with simplest and most practical two-speed gear.—Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

SIDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London Agents, H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W.

2½ h.p. Kerry; £9.—Uhlich, 86, Pritchards Road, Hackney Road, N.E.

KERRY, 2¾ h.p.; £11; good condition.—King, 23, Mendy Street, High Wycombe.

3 h.p. 1906 Triumph, magneto; £25; very good order.—Wauchope's, 9, Shoe Lane, London.

TRIUMPH, 1907, 3½ h.p., magneto; seen any time; £33, bargain.—Huxtable, 4, Maple Road, Surbiton.

2¾ h.p. Brown, in first-class condition, powerful; £9 15s.—Wauchope's, 9, Shoe Lane, London.

4½ h.p. Twin Minerva, brand new, never used; first reasonable offer. — 337, Burdett Road, Limehouse, E.

F.N. Agent's Catalogues on application; exchanges entertained.—5, Heath Street, Hampstead.

TRIUMPH, 3½ h.p., like new, only run few miles; £32.—Rey, 5, Heath Street, Hampstead.

£12.—2¾ h.p. Minerva, vertical, M.O.V., good condition, guaranteed. — 5, Heath Street, Hampstead.

TRIUMPH Agent's Catalogues on application; early delivery; exchanges entertained.—Heath Street Motor Works, Hampstead.

£17.—3½ h.p. 1907 Minerva, splendid condition, all spares, guaranteed.—5, Heath Street, Hampstead.

5½ h.p. Kerry, twin, 2½ Palmer tyres; bargain, £20, or exchange lower power.—5, Heath Street, Hampstead.

F.N., 1907, lightweight, spring forks and magneto; £24; guaranteed. — 5, Heath Street, Hampstead.

GRIFFON, 2¾ h.p., magneto, and spring forks, 1907, shop-soiled; only £25.—Heath Street Motor Works, Hampstead.

HUMBER, 2¾ h.p., splendid condition and going order, guaranteed; only £4 15s.—5, Heath Street, Hampstead.

GRIFFONS' Sole Agent's 1908 Catalogues on application; all models stocked; exchanges entertained.—5, Heath Street, Hampstead.

BAT, 3½ h.p., spring frame, De Dion engine, guaranteed perfect; only £17.—5, Heath Street, Hampstead.

3½ h.p. N.S.U., magneto, 24in. wheels, 1907 model; £19.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

KERRY, 5 h.p., twin-cylinder, excellent condition, spring forks, etc.; £25.—Liversidge, Ashlea, Selby.

4 h.p. Twin Werner; £15, in good running order.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. King, M.M.C. engine, low built, handle-bar control, etc.; offers.—McCall, Holmwood, Largs, Ayrshire.

2 h.p. Lightweight New Hudson, a perfect lightweight; £10.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. Minerva, in Chater-Lea frame, very powerful; £11 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2½ h.p. Kerry, in good condition, Clincher tyres, spring forks; £13 cash.—Belsten, 305, Stapleton Road, Bristol.

2¾ h.p. Clement-Garrard Lady's Machine, open frame; £12 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2 h.p. Werner Lightweight, splendid running order; bargain, £7 10s., take push bike part payment.—66, Harpenden Road, West Norwood.

MOTOR BICYCLES FOR SALE.

CLARKSON.—3¾ h.p. 1906 Rex, spring forks, Longuemare, splendid condition, good tyres; £15 15s.

CLARKSON.—2¾ h.p. Minerva, Longuemare, good tyres, just overhauled; £13.

CLARKSON.—5 h.p. Twin Rex de Luxe, Roc clutch, not done 100 miles; a bargain, £28.

CLARKSON.—2 h.p. Minerva, £8; 2 h.p. Bradbury, £10; 2 h.p. Humber, 2½ h.p. Ariel, £9.

CLARKSON.—4½ h.p. Twin Minerva, 1907, splendid machine, looks like new; £26.

CLARKSON Guarantees Above Machines in good running order, ready for the road.—5, Gibbet Street, Halifax.

2½ h.p. Bradbury Motor, in good running order; price £7 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

£10 10s., or offer.—2¾ h.p. Humber, as good as new; bargain; must sell.—Motorist, 86, London Road, Kingston, Surrey.

2½ h.p. 1907 Ariel, lightweight, new, but little shop-soiled; £25.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin and Montgomery sidecar, flexible or fixed; £25, or exchange lower and cash, or sell separate.—B., 306, Commercial Road, Peckham, S.E.

5½ h.p. Rex de Luxe, twin engine, magneto, free engine clutch; £22 10s., splendid bargain.—Wauchope's, 9, Shoe Lane, London.

3 h.p. Humber, free engine, handle starting, new Clincher, low, two accumulators, splendid condition; £8.—30, Lodge Road, Rugby.

3½ h.p. No. 1 Ariel, spring forks, in condition as new; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

4 h.p. Chater, Antoine, Nilmelior, new Watawata, footboards, fine condition; £16, or offers.—New, Winchcombe, Glos.

2-3½ h.p. Magneto Quadrants, in good running order, the pick for £19, splendid opportunity.—Wauchope's, 9, Shoe Lane, London.

TRIUMPH, 3 h.p., magneto, guaranteed in perfect running order; £17, will take 1½ h.p. lightweight in part exchange.—Avenell, 52, Norrey's Avenue, Oxford.

3½ h.p. Antoine, low built, long handlebars, 26 by 2½ Dunlops, Watawata belt; £14 10s.—Eagles and Co., High Street, Acton.

3½ h.p. N.S.U., magneto ignition, low frame, 24 by 2½ Peter-Union tyres, 1in belt, perfect condition; £22 10s.; approval.—Eagles and Co., High Street, Acton, W.

TRIUMPH, 1906, magneto, guaranteed splendid condition, quantity spares; £28; buying 1908 for sidecar.—Leigh, Winsford, Cheshire.

2¾ h.p. Phœnix, two-speed gear, will climb Westerham; £17 10s.; opportunity.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

BAT, 4 h.p., in good order, long handles, low seat, torpedo tank, accumulator ignition; price £18.—E. Westacott, 21, Mapesbury Road, Brondesbury, N.W.

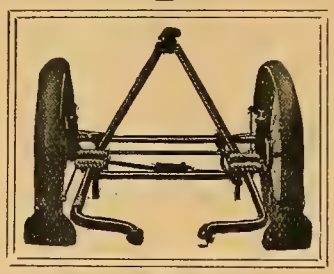
3 h.p. Magneto Singer, ball bearing engine; only £17 10s., in first-class condition.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin Kerry, Chater-Lea, long handle, footboards, in perfect order, climb anything; bargain, £18.—34, South Street, Eastbourne.

VINDEC Special, 3½ h.p., 1907 model, two-speed gear; lowest cash price £35.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

TRIUMPH, late 1907, as brand new, unscratched, absolutely perfect, spring forks, magneto, electric switch, every refinement, scarcely used; inspection invited; sacrifice £38.—Klein, "Hawthorns," Bramley Hill, Croydon.

Why run risk ? of Side-slip



when you can fit the **PHŒNIX** attachment for **£12 10s.**
For Passenger, **£15.**
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PHŒNIX MOTORS, Ltd., Blundell Street, London, N.

PLEASE NOTE.

We can supply all parts for 2¾ and 3½ h.p. F.N. Engines.

"VINDEC" Adjustable Pulleys for 2¾ h.p. F.N. Engines, 10/- each.

"VINDEC" Adjustable Pulleys for 3½ h.p. F.N. and 3½ or 5 h.p. Peugeot Engines, 15/- each.

"KUMFO Sponge Rubber Grips, ⅞in. or 1in. bars 2/6 per pair.

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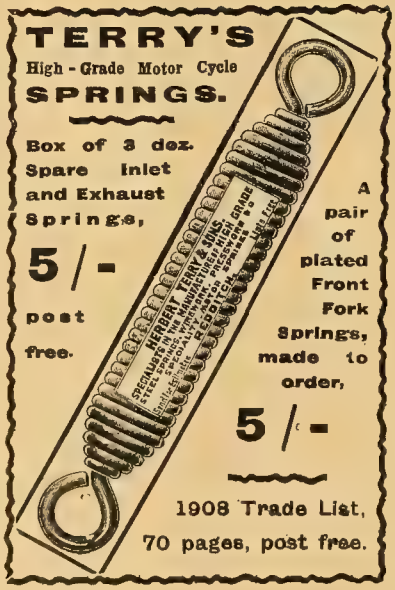
TERRY'S
High-Grade Motor Cycle
SPRINGS.

Box of 3 doz. Spare Inlet and Exhaust Springs, **5/-** post free.



A pair of plated Front Fork Springs, made to order, **5/-**

1908 Trade List, 70 pages, post free.

MOTOR BICYCLES FOR SALE.

2¾ h.p. Brown, Palmers, Longuemare, excellent order; £12, or offer.—Sewell, 218, Browning Road, Manor Park.

2½ h.p. Alldays, 26 by 2½ Clinchers, new coil, belt, and accumulator, new; 10 guineas.—Allen, 7, London Street, Greenwich.

2¾ h.p. Phœnix-Minerva, good running order; £12 10s., or best offer; seen any time; owner leaving England.—9, South Street, Isleworth.

VINDEC Special, two speeds, 5 h.p., twin, 1907 model, in first-class condition; 40 guineas; exchanges arranged.—Wauchope's, 9, Shoe Lane, London.

TRIUMPH, 1907 3½ h.p., new last August, run 300 miles only, perfect condition, spares and accessories; £34 or offer.—Mitchell, Langton, Sidcup Hill, Kent.

VINDEC Special, two-speed gear, 5 h.p. twin, latest model, in condition as new; price (lowest) £43.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Ariel-Minerva, long bars, very little ridden, complete, ready for road; expert inspection invited; £16 cash; after 8 o'clock.—67, Chestnut Grove, Balham.

KERRY, 2¾ h.p., 26in. wheels, Longuemare, new Stanley-Dermatine, in perfect running order, very fast; cheap. £10, or offer.—Hughon, 14, Lonsdale Road, Kilburn.

6 h.p. Matchless Motor Cycle, magneto ignition, twin Jap engine, sprung back and front; £29; exchange arranged.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

SPLENDID Twin Jap, 6 h.p., guaranteed faultless, best of everything; cost £63, accept £38; seen any time before 7.30 p.m.—Write, photo, "Motorist," 153, Fleet Street, London.

3½ h.p. Phœnix, fitted with two-speed gear, very powerful, a perfect machine for passenger work; £19 19s., very lowest.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Beeston Humber, good condition, plenty spares; £12; seen in Blackburn, or meet likely purchaser within thirty miles.—9,295, *The Motor Cycle* Offices, Coventry.

NINE 3½ h.p. 1907 Brand New Triumphs, still in crates, as delivered from the makers; £41 each; exchange arranged; second-hand machines liberally allowed for.—Wauchope's, 9, Shoe Lane, London.

3½ h.p. Minerva Model, magneto ignition, spring forks, stand, carrier, horn, and tools; £22; capital opportunity.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½-4½ h.p. Twin Peugeot, No. 6 genuine Chater-Lea, round tank, Palmers, Brooks saddle and belt, very low, magnificent hill-climber, perfect condition, too fast for owner; £30, or exchange Triumph; write, or call evenings.—"C.H.," 21, Highbury Quadrant, N.

5½ h.p. Twin-cylinder Rex de Luxe, 1908 model, black finish, free engine clutch, starting handle, twin back wheel, magneto ignition; £35; exchange arranged.—Wauchope's, 9, Shoe Lane, London.

LIGHTWEIGHT Wolf Motor Cycle, as new, 1908, Stevens 1¾ h.p. engine, Palmer heavy tyres, Main-Hilton stand, Bowden lift, unscratched; accept £17 10s.; owner buying heavier machine for sidecar.—K., 6, Fieldhouse Road, Balham.

3½ h.p. N.S.U., 1907 model, magneto, free engine, spare pulley, two belts, back tyre new, Riches tubes, stand, carrier, Lucas foot pump, horn, spares, not done 1,000 miles; cost £47 10s.; perfect condition; £30.—Holmes, Dunster House, Durham.

3½ h.p. Brown, new Brooks non-skid back, Palmer front, spare Clincher and Riches tube, spring forks, R.O.M. ignition, Advance pulley, footrests, foot brake, low seat, long bars, complete, lamp, horn, tools, spares; £22; seen and tried.—Waterlow, Dunwood, Withington, Manchester.

MOTOR BICYCLES FOR SALE.

3½ h.p. Excelsior, splendid condition; cheap, £11, or offer.—190, Mellison Road, Tooting.

3½ h.p. 1907 Quadrant, spring forks, magnificent order; £22.—190, Mellison Road, Tooting.

2¼ h.p. Minerva, light and fast; £11.—Haines, 26, Church Crescent, South Hackney, London.

1908 Triumph, 3½ h.p., unridden, just received from makers; immediate delivery; £46, no offers.—No. 9,306, *The Motor Cycle* Offices, Coventry.

5 h.p. 1907 Vindec, Phelon and Moore two-speed, Grose back tyre; £46, or nearest reasonable offer.—Dent, Esh Winning, Durham.

1907 N.S.U., 3 h.p., magneto, Watawata belt, adjustable pulley, a bargain, £20; also Ariel sidecar, 26in. wheel, cane body, upholstered green leather, £4 5s.—105, East Parade, Keighley.

9 h.p. Bat-Jap, magneto in tank, Jap plate clutch, spring frame, rubber belt, very little used; too powerful for owner; £46 cash.—Box No. 9,309, *The Motor Cycle* Offices, Coventry.

GENUINE Chater-Lea No. 6 Low Frame, fitted with engine lugs, girder forks, mudguards, and long handle-bars, £3 18s. 6d.; also 6 h.p. twin engine, £9 15s.; all brand new.—T. Field, 148, Burdett Road, Bow, E.

1908 3½ h.p. Triumph, magneto, Palmer cords, splendid condition, cost £50, used one month, £44; Mills-Fulford sidecar, fits same, Palmer cord, cost £11, used few miles, £6, together £48.—A. M. Cott, Clare College, Cambridge.

£18.—5 h.p. Twin Alcyon, spray carburetter, spring forks, Brooks B100 saddle, accumulator ignition, good condition; selling, owner ordered abroad; seen at Woolwich.—Apply, Mitchell, Seaborough, Crewkerne.

STAMFORD HILL.—3½ h.p. Minerva, £18; 4½ h.p. twin Minerva, spring forks, new tyres, £26 10s.; 3½ h.p. twin Werner, £16 10s.; 3 h.p. Trent, Chater-Lea, £12 10s.; 3½ h.p. M.M.C., Chater-Lea, £11 10s.; 2 h.p. Rex, 2¼ h.p Humber, £8 each; 2 h.p. Precision, £6 10s.; 2 h.p. Raleigh, £4 10s.; seen and tried any time.—128, High Road, Tottenham.

LIGHTNING Flashes.—Rex de Luxe (unridden), black finish, £35; shop-soiled 3½ h.p. 1907 Rex, spring forks, magnificent mount, £19 19s.; twin Rex, £22; 3 h.p. M.M.C., £13; twin Werner, £19 19s.; 3½ h.p. Hobart, £14; 3 h.p. Givaudan, £14 10s.; 3 h.p. Clarendon, £13 10s.; 2¾ h.p. De Dion, £12 10s.; 7 h.p. Peugeot, £30, nearly new; 3 h.p. Rover, £13 10s. 4 h.p. Antoine, £16 10s.; 3½ h.p. magneto Simms, £17 10s.; 3½ h.p. Jap, £18; 4 h.p. Jap, £23, torpedo; twin Antoine, £25; 2 h.p. Minerva, £7; 2 h.p. Quadrant, £8; 2 h.p. Standard, £8; 2¾ h.p. Antoine, £9 10s.; 2 h.p. magneto Simms, £9; 3 h.p. Hobart, £10; 3 h.p. Rover, £13 10s.; 3¼ h.p. Rex, £9 10s.; spring fork Rex, £14 10s.; 5 h.p. Rex, £18; 3½ h.p. Kerry, £18 10s., 2¾ h.p. F.N., £12 10s.; 2¾ h.p. De Dion, £14 10s.; 3½ h.p. N.S.U., magneto, spring forks, £24; Rex de Luxe, £27 10s.; twin Werner, £16; twin N.S.U., £25; 3 h.p. M.M.C., £13; 3 h.p. Humber, £10 10s.; 3½ h.p. Minerva, £18 10s.; soiled, £23; twin Alcyon, £22; 3 h.p. Lloyds, £14 10s.; 2½ h.p. Excelsior, £6; 4 h.p. Coronet, £16; 1¾ h.p. Simms, £6; 2¾ h.p. Antoine, £7; 3½ h.p. Rex, spray, adjustable pulley, £10 10s.; cash, exchange, or extended payments.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

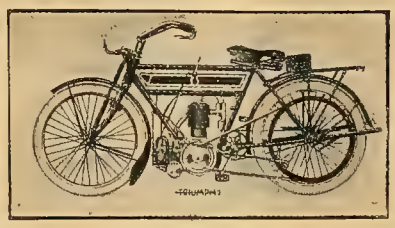
TRICARS FOR SALE.

5 h.p. Riley Tricar, water-cooled, two speeds, car tyres; £32.—Below.

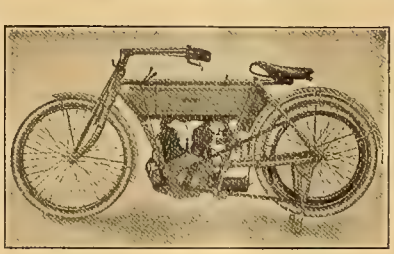
TWO-SPEED Tricar, 3½ h.p. Quadrant engine, Phœnix gear, belt drive, grand goer; £19.—Below.

3½ h.p. Minerva Tricar, M.O.V., Longuemare carburetter, fan-cooled; £18, —Farrar, Square Road, Halifax.

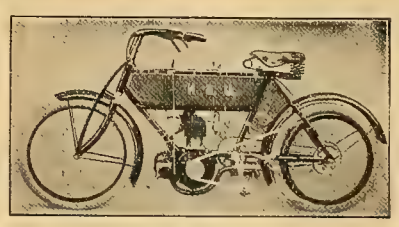
FOR Sale, 5 h.p. Star, single-cylinder water-cooled Stevens engine, chain drive, two-speed gear; £30; exchange low motor cycle, light F.N. preferred and cash to value.—Advertiser, Warleigh Lodge, Wimbledon.



1907 and 1908 3½ h.p. MAGNETO TRIUMPHS.
You can get them at **WAUCHOPE'S.**
Exchanges arranged.
Price: 1907, £41; 1908, £48.



1908 VINDEC SPECIALS.
You can get them at **WAUCHOPE'S.**
Second-hand machines in part payment.



1908 N.S.U. MODELS.
You can get them at **WAUCHOPE'S.**
Second-hand machines in part payment.

1908 MINERVAS.
You can get them at **WAUCHOPE'S.**
We can allow you the best price for your second-hand machine.

A large variety of second-hand machines offered at special clearance prices. Send for list Leading makes from £5. All machines sent out in good running order. Overhauled by practical engineers.

We wish to draw your notice to the fact that we have on hand a large consignment of 1907 Magneto Triumphs, all brand new, just delivered, and we are prepared to make a liberal allowance for second-hand motors in part payment. On receipt of particulars, subject to machines offered being satisfactory at sight, we will submit an exchange offer.

WAUCHOPE'S,

9, Shoe Lane, Fleet St., LONDON, E.C.

'Phone: 5777 Holborn.
Telegraphic Address: "Opificer, London."

TRICARS FOR SALE.

HALIFAX.—4½ h.p. Stevens, spray, long footboards, fine order, tyres almost as new; £21.

HALIFAX.—6 h.p. twin Antoine tricar, Chater-Lea, a real gem, open frame, three speeds, wheel steering, chain drive, foot clutch; £39 10s.

HALIFAX.—5 h.p. Humber tricar, two speeds, open frame, wheel steering, almost as new; £45.

HALIFAX.—Quadrant Carette, 6 h.p., open frame, wheel steering, two speeds, coach-built, latest model, £35, cost £100.

HALIFAX.—6 h.p. twin-cylinder Advance tricar, wheel steering, only used for trials; bucket seat; £35.

HALIFAX.—5½ h.p. Rex Triette, spring frame, free engine clutch, very reliable; £29 10s.—Below.

HALIFAX.—4 h.p. Rex tricar, Phœnix two-speed gear, good running order; £21.

HALIFAX.—4½ h.p., water-cooled Wolf, two speeds; £37 10s.; condition almost new.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built, four-speed gear; £37 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

TRICAR, 6 h.p. Quadrant, wheel steering, coach-built seats, two speeds, good running order; £30, or offers.—Carlingford House, Hampstead.

IMPERIAL Rover Tricar, coach-built, 4 h.p., water-cooled, two speeds, splendid condition; £30; owner buying car.—Smith, 125, Brockley Rise, S.E.

5½ h.p. Beeston Humberette, as new; £45; 4½ h.p. genuine De Dion, excellent condition; fair trial on either.—L. Hunter, Bury St. Edmunds.

4¼ h.p. Phœnix Tricar, two speeds, coach-built, Palmer cord tyres, good condition; trial given; £35.—Sydney, 13, Broadway, Walham Green, London, S.W.

PHŒNIX Trimo, coach-built forecar, 3½ h.p., Phœnix two-speed gear, handle-starting, tyres good, splendid running order; what offers?—Mawson, Draper, Morecambe.

£36.—6 h.p. Rexette, 1906, open frame, water-cooled, two speeds, wheel steering, luxuriously sprung, as new; trial.—Hamilton, 16, Northcote Road, Southsea.

6-8 h.p. Twin Stevens, coach-built, open frame, three speeds and reverse, studded tyres, climb anything; 40 guineas.—Kennard, Woodbridge Hill, Guildford.

3½ h.p. Tricar, Minerva engine, Eadie frame, pedals, nearly new 1in. belt and heavy tyres; £18 10s., genuine bargain.—White, Charlotte Place, North Street, Clapham.

6 h.p. Riley Tricar, very good condition, just overhauled, many refinements and spares, Bowden control; trial run; owner bought car; £60.—Seabrooke, The Elms, Grays, Essex.

8-10 h.p. Lagonda Tricar, three speeds, in condition as new, water-cooled engine, several spares; any severe trial given; £75.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

TRICAR, 7 h.p. w.c. twin-cylinder Fafnir, clutch, Riley two-speed, gear-box, wheel steering, coach-built, car tyres, lamps, spares, unscratched; £50, or close offer.—Blackburn, 35, New Broad Street, London. Telephone, 1230, Wall.

POWERFUL Tricar, 10 h.p., twin-cylinder, pressed steel frame, Marconi coils, coach-built bodies, beautifully upholstered; no reasonable offer refused, or would take 5 h.p. light Vindec in part payment.—Motor, 6, Pierrepoint Road, Acton.

TRICAR Chassis, wheel steering, fitted with two-speed gear, radiators, car tyres, large carrier, tool box, etc., etc., beautifully painted and upholstered, everything fitted complete except engine; £25, a bargain; photo.—"Motor," 42, Elmdale Road, Palmer's Green, N.

TRICARS FOR SALE.

SINGER Tricar, twin-cylinder, first-rate order; £70.—37, Newstead Road, Lee, Kent.

6 h.p. Water-cooled Tricar; £19.—Particulars, 139, Great College Street, Camden Town.

3½ h.p. Automotor Tricar, Longuemare, splendid condition; £12.—F. Piner, Colnbrook, Slough.

4 h.p. Rover, two speeds, free, Palmer, new condition, motor bike part; £27 10s.—Brockley Cycle Works, S.E.

LAGONDA Tricar, 5½ h.p., open frame, two speeds, chain drive, perfect order; £35 lowest.—Overstall, Virginia Water, Surrey.

QUADRANT Tricar, 5½ h.p., coach-built, two-speed, free engine, good running order; bargain, £30.—Neale, London Road, Pulborough.

RILEY Tricar, 4½ h.p., two speeds, coach-built, just overhauled, good running order; £35.—Brice, Brigstock Road, Thornton Heath.

LIGHT Tricar, 3½ h.p. Minerva, three-speed gear, clutch, magneto; sell or exchange boat or motor bicycle.—Billinghurst, Godwins, Sutton.

5 h.p. Rexette Tricar, water-cooled, wheel steering, handle starting, two speeds, perfect in every way; £29.—G.H., 33, Queen Street, Hitchin.

REXETTE, 6 h.p., with many improvements, a perfect gem; £35; owner will run it to London for inspection.—S., 5, Aldenham Road, Radlett, Herts.

PHŒNIX, 4½ h.p., two-speed, chain driven, magneto, spring frame, footboards, tool box, fan-cooled, excellent condition.—24, Digby Road, Finsbury Park.

HUMBER Tricar, 5 h.p. water-cooled new engine, two speeds, splendid condition; take good motor cycle part exchange, or cash £45.—Abram, Skipton, Yorkshire.

SINGER 9 h.p. Tricar, twin-cylinder, water-cooled, three speeds and reverse, special heavy car tyres, splendid condition; bargain, £60.—Lemel, 49, Dartmouth Road, Brondesbury.

PHŒNIX Trimo, 3 h.p., light and fast, in thorough good condition, forecarriage upholstered in green; £12, spare wheel for converting to bicycle.—9, Coleman Street, New North Road, N.E.

PHŒNIX Trimo (1907), 5-6 h.p. Minerva, w.c., dual ignition, perfect order and condition, ridden 900 miles, full spares and accessories, smart, fast, reliable touring car; price £70.—McGregor, 5, Budge Row, E.C.

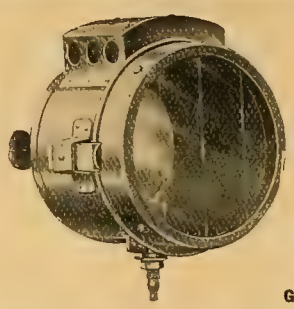
RILEY Tricar, 6 h.p., double front seat, tyres as good as new, one new spare, three gas lamps, electric tail light, tools, accumulators, just been overhauled, and in perfect running order; £65.—Bamford, 57, London Road, Brighton.

4½ h.p. Water-cooled Stevens Tricar, two speeds, chain drive, Palmers, 2¼ front, 2½ back, nearly new; cost £85, accept £35; 5-6 h.p. twin tricar, perfect condition, £22 10s., exchange in part, or for light delivery van.—Jones, Ironmonger, Lichfield.

REX Tricar, coach-built seat, nearly new 1in. Watawata belt, pulleys and Palmer cord tyres, very light and fast, in splendid condition; only £16 10s., will take lightweight bike or sewing machine as part; offers.—P. Croydon, Felixstowe, Suffolk.

QUADRANT Carette, 6 h.p., tyres almost new, new spare Continental, 26 by 2½, new outer Peter-Union, new spare valves, plugs, and wires, and voltmeter, horn, lamps, rubber mats, driving apron, practically as good as new in appearance and running; £40 cash.—Dr. McNeil, Garstang, Lancashire.

QUADRANT Tricar, latest design, splendid condition, 6½ h.p., climb any hill, wheel steering, coach-built, enamelled green, and comfortably upholstered and sprung, acetylene side and electric tail lamps, the most handsome motor of its class; list price £99 15s.; offers invited, but will not sacrifice; photo on receipt of letter; any trial or inspection.—'Sandhurst," Moore, near Warrington.



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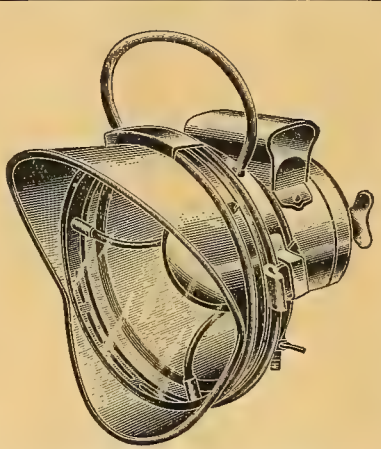

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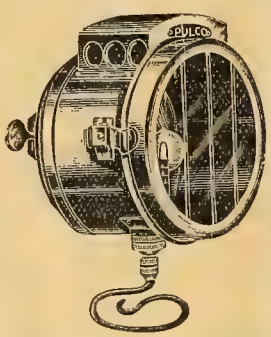

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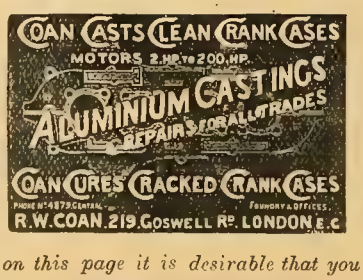
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STAMFORD HILL.—5 h.p. w.c. Oppermann three-speed tricar, overhauled, plated, and enamelled like new, £35; 4½ h.p. two-speed Phœnix Trimo, overhauled, plated, and enamelled like new, £32 10s.; 4½ h.p. Kelecom, £22; 3½ h.p. M.M.C., £10; 3¼ h.p. Rex, Millford front, £15; all bargains and guaranteed; trials. We live on a hill.—123, High Road, Tottenham.

QUADRANT Tricar, latest model (1907), 6½ h.p., two-speed, twin engine, wheel steering, three powerful brakes, Brooks bucket seat, coach-built, beautifully finished, upholstered in dark green leather; this machine quite equal to new, in perfect condition; it has scarcely ever been used owing to illness; cost £95 cash, without extras, reasonable offer entertained.—Further particulars, photo, and appointment for trial, write, J. G. Looker and Co., 225, Deansgate, Manchester.

SIDECARS AND FORECARS.

ARIEL Sidecar, condition perfect, new 26 by 2 Dunlop tyre; £5 10s.—Below.

MONTGOMERY Sidecar, as new, 24 by 2 Peter-Union tyre, fit 6 h.p. N.S.U.; £6 10s.—Howitt, Newbiggin-by-Sea.

MILLFORD Forecar, in good condition, wicker chair, upholstered; £7.—John Siddons, Oundle.

FORECAR, strong, side stays, band brakes; £5.—Grocer, Surrey Road, Newlands, Peckham Rye.

MONTGOMERY for sale, good condition, 26in., cheap, £4 4s.—R. Palmer, Tollard Royal, Salisbury.

SALE, Montgomery sidecar, good condition; £6.—J. C. Watson, Devonshire Avenue, Roundhay, Leeds.

FIVE Lovely Sidecars, some quite new, 26 by 28in. wheels; cheap for cash.—Farrar, Square Road, Halifax.

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MONTGOMERY Sidecar, 26in. wheel, 2in. Dunlop, good condition; bargain, £3 10s., exchange trembler coil for voltmeter.—9,292, *The Motor Cycle* Offices, Coventry.

FOR Sale, Trimo Forecarriage, good as new, will fit almost any bicycle; can be seen near London; price £5.—Write, "Lano," Pottle, 14, Royal Exchange, London, E.C.

MILLS-FULFORD Forecar, sidestays, wing mudguards, two band brakes, cane seat, upholstered green, exchange for flexible sidecar.—B. Parry, Empire, New Cross, S.E.

STAMFORD HILL.—Marvellous value. Our famous sidecars have double leaf springs, frames brazed and stove enamelled, full sized well upholstered bodies. We will send on approval, and leave you to judge. None better, whatever you pay. Our price £4 18s. 6d., complete. Please order early.—128, High Road, Tottenham.

DON'T Order your sidecar until you have seen our new list, post free on application; the whole question of sidecars is fully examined and explained. You cannot afford to be without it. We have some bargains to clear in two-speed motor bicycles, specially designed and built for sidecar work.—W. Montgomery and Co., Bury St. Edmunds.

EXCHANGE.

8-10 h.p. Rexette, for powerful motor cycle and cash.—162a, Dalston Lane, Dalston, N.E.

8 h.p. De Dion Car, wants adjusting; £45, exchange modern tricar.—Brockley Cycle Works, S.E.

EXCHANGE, 1¾ h.p. Minerva, for push bike and cash.—Goldwasser, 25, Southampton Street, Pentonville.

ALMOST new Gripwell Brake, for Xl'all spring forks or anything useful. — 123, Priory Street, Colchester.

TWO-STROKE Engine, 2½in. by 2½in., complete, for two good beaded covers, 28 by 2.—Hodgson, Anstey, Leicester.

EXCHANGE, 3½ h.p. Rex, good condition, for lower power and cash, or sell, £12 10s.—Moor, 30a, Malyons Road, Ladywell, S.E.

DYNAMO, ten light size, also spare armature, and volt-ammeter, for motor cycle. — 1, Shaftesbury Avenue, Roundhay, Leeds.

EXCHANGE, Full-plate Camera, Edison Gem Phonograph, 46 records, good push bike, nearly new, for good motor cycle, or sell.—Pemberton, Hollings Street, Fenton.

EXCHANGE, 3 h.p. De Dion engine, in perfect condition, and 25-volt charging dynamo, for 5 to 6 h.p. twin engine, in good condition.—14, Timperley Street, Widnes.

2¾ h.p. Zedel, Chater-Lea, F.N., Clinchers, for tricar, not less than 5 h.p., two speeds, or 3½ h.p. magneto cycle, cash adjustment.—MacDougall, plumber, Aberfeldy.

GENTLEMAN Wishes to exchange his Collard and Collard drawing room grand pianoforte, for really good tricar or small car.—J.G., 84, Fore Street, Bodmin, Cornwall.

EXCHANGE, Variable Pulley, with free engine clutch, also front rim brake, for two covers and tubes, 28 by 2, or anything motoring.—Motorist, 82, Mornington Street, Keighley.

WILL Exchange Scotch walnut bedroom suite, new, cost 10 guineas, for 3 h.p. bike, good make, room wanted; seen any time.—Carvell, 115a, Harrow Road, Leytonstone.

EXCHANGE Pair 26 by 2¼ wheels, with tyres, in good condition; exchange pair 28 by 1¾ wheel and tyres, cash adjustment.—J. C. Watson, Devonshire Avenue, Roundhay, Leeds.

PHONOGRAPH, Edison Standard, two trumpets, stand, 61 records, two record boxes, nearly new, and small cash, for good motor bike. — 9,303, *The Motor Cycle* Offices, Coventry.

70-GUINEA upright grand piano, by Roenisch, in rosewood, new 1906, exchange for good tricar or high power motor bike, with two speeds.—Nutley, Carew Road, Eastbourne.

EXCHANGE, for good motor cycle, nearly new tricar, coach-built front, everything complete, ready for engine, three new Palmer tyres, or sell £18.—31, Sebert Road, Forest Gate.

BULLDOG, pedigree, Brindle, quiet with children (photo, stamp), for motor cycle requiring slight repairs or accessories; value £6.—Atkinson, 34, Windsor Avenue, Fairview, Dublin.

EXCHANGE Concert Orchestrion, driven by small gas engine, and nine pieces of music, wants slight repair, for motor cycle, with or without engine, would give little cash.—Lewis, Cardigan Street, Oxford.

EXCHANGE, 2¾ h.p. Minerva, inclined, overhauled, enamelled, plated, B.S.A. path racer, new tyres, two back wheels, quantity of cycle accessories, little cash, for tricar, twin or single. — 118, Lambert Street, Hull.

EDISON Standard Phonograph, nearly new cover, Sapphire reproducer, recorder, and shaver, and 60 records, cost £8 8s., for good motor cycle; no rubbish; warranty given and expected.—Lambert's Cycle Depot, 192, Cheapside, Birmingham. Established 1885.

STANLEY DERMATINE MOTOR BELT

AND

The Burning Question: LEATHER v. CANVAS AND RUBBER.

On the 7th February, 1908, Mr. H G. Cove read a paper before the members of the Auto Cycle Union on "Motor Cycles and Accessories." The following are extracts from "The Motor Cycle," Feb. 12th, pages 127 and 128. The burning question of "Leather v. Canvas and Rubber Belts" was fully dealt with in the paper:

The next interesting item was a very good hint with regard to the canvas and rubber belts, which had been sent to the lecturer by the maker of the Stanley Dermatine Belt. His advice is that when the belt is taken off it should be replaced to run in the same direction, as if the pull comes in the reverse direction, the strain is likely to draw back the canvas, and, as a result, the rubber on the top of the belt cracks. The advent of the adjustable pulley had created a demand for an adjustable belt fastener, and two fasteners were shown which have just been placed on the market, one the Stanley, in which the hook is detachable and can be used in conjunction with an adjustable pulley to alter the gear ratio from 4 to 4½.

In the discussion which followed, Mr. W. H. Wells remarked: There was a time when he used leather belts; that was when there was nothing else. Now he used a rubber belt, and nothing now would induce him to use a leather one. He was able to keep his hands and gloves clean. The best leather belt he was never able to ride more than 100 miles without cleaning it.

Mr. A. C. Pemberton said: Rubber belts were as good as could be wished for. The great fault of leather belts was that they would not stand the weather; when soaked with rain they commenced to slip.

Mr. H. G. Bell said: Speaking of belts, he always used a rubber belt now, but if we could get a good preparation for leather belts it would be a satisfaction.

Mr. M. I. Tuchmann remarked: As to belts, he considered the rubber and canvas belt the only possible one. It had no serious disadvantages. The belt had a tendency to assume a certain shape. He considered one of the best things they had seen that evening was the Stanley Fastener for Belts; he thought it would be greatly used this year.

The only original Canvas and Rubber Belt is the

STANLEY DERMATINE.

Sole Manufacturers:

Messrs. the Stanley Dermatine Motor Belt Co.,

32, LONDON ROAD, BROMLEY, KENT.

STANLEY WEBB, Manager.

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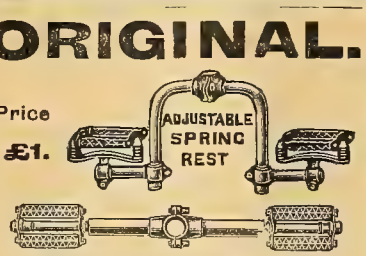

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STRONG PLAIN RESTS, **8/6.**

A. C. WRIGHT, 5, LORRIMORE BLDGS., WALWORTH,

ADVERTISERS—Please note that Friday is the latest day we can receive advertisement copy for the following week's issue

EXCHANGE.

EXCHANGE, three motor cycles, also tricar, for ordinary cycles, or sell cheap, giving up this branch.—58, East Street, Taunton.

WE are prepared to take second-hand machines in part payments for 1907 brand new 3½ h.p. magneto Triumphs. We have purchased a large number of these famous machines, and can deliver immediately from stock in crate as received from the makers. Send us particulars of your present machine, and we will quote a price for same unseen, subject to it being satisfactory at sight. —Wauchope's, 9, Shoe Lane, Fleet Street, London.

WANTED.

ENGINE, 2 h.p., inclined; cheap and reliable.—Boult, South Bank.

RILEY, 9 h.p., three-speed and reverse; cheap.—1, Gas Street, Coventry.

WANTED, Rug, also apron for tricar front seat.—15, Haddon Grove, Sale.

WANTED, 3½ h.p. M.M.C. cylinder head. —Crosher, "Iandene," Alexandra, Scotland.

WANTED, Ariel or Dion Trike, also 3½ h.p. bike.—59, Allfarthing Lane, Wandsworth.

WANTED, reliable powerful bike, sidecar work, magneto.—Gibbon, The Grove, Pontypridd.

MOTOR Bicycle, less engine, carburetter, tank, suit 3½ h.p. inclined Minerva.—Bishop, Wylam.

WANTED, 28 by 2 wired-on cover, also 9ft. of ⅜in. canvas belt.—94, Shrubland Grove, Dalston.

WASTE Indiarubber, every description; highest prices paid.—Union Rubber Co., Calls, Leeds.

LIGHTWEIGHT Motor Bike, under £13; state age, parts, condition, faults.—Bruce, 8, George Street West, Luton.

PHŒNIX Quadcar, will give cash and magnificent 4½ h.p. Riley tricar, or sell £36.—R. Else, Leawood, near Matlock.

WANTED, Motor Bicycle, exchange electric lighting plant, accumulators, or sell £20.—46, London Road, St. Albans.

LADY'S Motor Cycle; state fullest particulars, make, price, weight, condition.—No. 9,305, *The Motor Cycle* Offices, Coventry.

WANTED, speed gear to fit 3 h.p. De Dion, or back wheel for tricar, with gear; cheap.—Bourne, Grocer, Canterbury.

TRICARS and Motor Cycles, any make, in part payment for 6 h.p. Rover cars at £130. — Davis and Son, Moseley, Birmingham.

WANTED, sidecars, any quantity; will give in exchange new £10 10s. gents' pedal cycles, guaranteed twelve months.—Below.

WANTED, good modern motor cycles; cash waiting if quality and prices are right.—Farrar, Square Road, Halifax.

WANTED, about 3½ h.p. Motor Cycle, cheap, cash, or part exchange Centaur road racer cycle.—71, Burghley Road, Hornsey.

WANTED, 750 by 85 mm. Dunlop outer cover and tube, good condition; cheap.—White, Charlotte Place, North Street, Clapham.

ACCUMULATOR, carburetter, coil, stand, oil pump, lamp, in exchange for good push bicycle; cash adjustment. —Burch, 15, Greek Street, Soho.

TRICAR Wanted, Riley, 1907, 6 h.p., bucket seats, two-speed, twin, good condition; also Triumph handle-bar required.—Fisher, Pontypool Road, Mon.

WANTED, Longuemare spray carburetter, for single-cylinder motor bike, must be in perfect order, and approval.—Cope, Bromsash, Ross, Herefordshire.

WANTED, Twin Vindec, or other high-class magneto twin, with two-speed gear, modern and perfect, also sidecar, Castor wheel preferred; spot cash. Telephone, 7646, Wall.—Wood, 33, Cornhill, London.

WANTED.

WANTED, pair Xl'all spring forks, plated.—Ivo Blott, Bedford.

REQUIRED, powerful Tricar and motor cycle; cheap. — H. Gray, 7, Dagmar Road, S.E.

WANTED, Ariel Coupler, Price's stand, petrol filter-funnel.—Norris, Greenfields, Harrow.

WANTED, 1¾ h.p. Werner engine, complete, good condition.—164, Cross Lane, Salford.

LADY'S Motor Cycle wanted, magneto, good condition.—Cyclist, 27, South Street, Reading.

WANTED, motor cycles, good makes, for spot cash. — Rey, 5, Heath Street, Hampstead.

WANTED, coach-built sidecar; cheap, for 3½ h.p. Brown. — Racecourse Garage, Doncaster.

WANTED, Phœnix Quad; cheap for cash. — Write, H., Craigallion, Champion Hill, S.E.

WANTED, twin Rex, and sidecar, as new. — Robinson, 3, Abbey Terrace, Merton, Surrey.

WANTED, carburetter, for 2 h.p. engine, in good condition.—Beazley, Laxton House, Oundle.

WANTED, Triumph or F.N., must be cheap for cash.—Box 9,301, *The Motor Cycle* Offices, Coventry.

WANTED, crank case, or pulley half of case, for 4 h.p. Antoine. — Mystery, Tramway Depot, Ayr.

WANTED, motor cycle, any condition; cheap; Rex preferred.—1a, Frideswide Place, Kentish Town, N.W.

WANTED, 3 to 3½ h.p. motor; exchange 5-6 h.p. Rex twin, almost new; too powerful.—7, Blake Lane, Birmingham.

WANTED, a really first-class motor bicycle, or tricar.—Send fullest particulars to V., 12, Camberwell Road, London.

MOTOR Cycle, good make, modern, near £15; photo preferred; deposit system.—No. 9,302, *The Motor Cycle* Offices, Coventry.

WANTED, latest model two-speed Vindec and sidecar, or similar combination.—Write, Motor, 56, St. John's Road, Clapham Junction.

WANTED, motor tricycle, 3 or 3½ h.p., must be sound.—State full particulars and lowest cash price to Leighton, optician, Lancaster.

WANTED, motor cycle, good make, magneto, for cash; send full particulars. — Box Li,792, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

WANTED, 3 h.p. Triumph, or 1¾ h.p. F.N., magneto; approval, deposit. —Lowest cash and particulars to G. H. Aston, Coalway, Coleford, Glos.

WANTED, 3½ h.p. Triumph, Brown, or Quadrant, in exchange for 3 h.p. Olympia and cash, almost new, or sell £18.—A. Baker, Beaworthy, Devon.

WANTED, good forecar, water or fan-cooled, from 5 h.p., car control preferred, two or three speeds, side lever. —18, Boundaries Mansions, Balham.

WANTED, variable speed pulley, or free engine clutch, to fit 4 h.p. Antoine engine; coil, ¾in. belt, any accessory.—Mystery, Tramway Depot, Ayr.

WANTED, Roc, Vindec, or Rex de Luxe, singles or twins, free engine essential, two-speed gear; also low 3½ h.p.; also rigid sidecar; must be perfect and cheap for cash.—49, Hurst Road, Eastbourne.

WANTED, high-class up-to-date twin, about 5 h.p.; give in exchange 3 h.p. free engine Humber and 3½in. screw-cutting lathe, by Britannia Co., or sporting guns.—Robson, 11a, Blomfield Street, London, E.C.

WANTED, latest pattern twin Vindec or Roc, two-speed (with or without sidecar), in exchange for 3½ h.p. twin Norton-Peugeot, nearly new; cash adjustment.—Sprunt, 138, London Road, Kingston, Surrey.

G. T. RICHES & CO.,

19, STORE STREET, LONDON.

RICH DETACHABLE AIR TUBE,

Fitted with the new Protective Sleeve.

26in. x 2¼in., **14/6**; 26in. x 2½in., **15/6**.

Your own tube converted. Please write for special list, with all prices for new tubes and prices for conversion, with instructions and hints. Our general accessory catalogue M free on application.

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for MOTOR CYCLISTS.

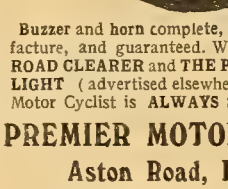
This is an electrically operated horn, as now used on all up-to-date cars. It gives a deep continuous note, audible at a great distance, and is the most efficient warning yet introduced.

Electric Buzzer, with press button and wiring, plated finish, ready for attachment to any ordinary horn **8/6.**,

Buzzer and horn complete, 12/6. English manufacture, and guaranteed. With **THE PREMIER ROAD CLEARER** and **THE PREMIER SEARCH-LIGHT** (advertised elsewhere in this issue) the Motor Cyclist is **ALWAYS SAFE.**

PREMIER MOTOR CO., LTD.

Aston Road, BIRMINGHAM.



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"ARCTIC" FANS. Enclosed type. Thousands in use. Testimonials from all parts oe the world. H.S.H., TASMANIA: A most successful Fan. (TWO YEARS IN USE.) S.D.S., JOHANNESBURG: Gives every satisfaction. (18 MONTHS IN USE.) S.H.D., DROGHEDA: Can run on low gear any length of time. H.J. LEIGH: I would not drive without Fan. Wm. C., IPSWICH: Well pleased with investment. W.S., BLACKHEATH. Power greatly increased. Numerous others. Originals can be seen. 30/- to 62/6. Scientifically designed. Silent frictionless bearings. Flexible connections. Readily fitted. Many in use on mall cars. **JOHN CHAPMAN & CO.,**

Finchley Road, Child's Hill, N.W.

WANTED

WANTED, Second-hand 5 h.p. Riley, as part payment of second-hand 9 h.p. Riley car.—9,308, *The Motor Cycle* Offices, Coventry.

WANTED, Second-hand 5 h.p. Riley Tricar, as part payment of second-hand Riley 9 h.p. car.—Box No. 9,307, *The Motor Cycle* Offices, Coventry.

WANTED.

WANTED, B100 Saddle, Lucas Acetylene lamp, Lycett's B special bag exchange ¾in. Watawata belt, 18ct. gold ring, cash adjustment.—Shingles, Cromer.

TRIUMPH, 1907 or 1908, in exchange for Moose head, lately arrived from Canada, fine specimen, value £30, and cash up to £15.—6, Greyswood Street, Streatham, London, S.W.

WANTED, twin motor cycle, in exchange for 2 h.p. Humber lightweight and Ormonde, 3 h.p. Kelecom engine cycle. See advertisement in Motor Cycles.—Ryder, Heathfield, Sussex.

WANTED, 1907-8 Four-cylinder F.N., best possible condition, exchange 2¾-3 h.p. cycle, in grand condition, also splendid stereoscopic camera in case, cost £12.—E. Dakin, 23, Thurstane Street, Halliwell, Bolton.

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BE Your Own Judge, and fit a Silent silencer on seven days' approval.—Below.

FOOTRESTS.—Try mine; light, strong, cheap; 7s. 6d.—G. Aldington, 59, Haydon's Park Road, Wimbledon, S.W.

COIL, fast trembler, nearly new; 9s.; seen working.—48, Pentney Road, Balham.

WHIPCORD Breeches, latest cut; 10s. 6d. — J. C. Savage, 119, Donegall Street, Belfast.

26 by 2½ Clincher, with Pullman puncture-proof non-skid; 20s.—Hethernington, Moffat.

3½ h.p. Genuine Bat racing engine; £3 10s.; guaranteed.—29, Eccles Road, Clapham Junction.

BLUEMEL'S 30 amp. accumulator, 6s. 6d.; 60 amp., 10s.—26, Orchard Street, Weston-super-Mare.

ARIEL Coupler, £1; Peter-Union cover 26 by 2½, both as new.—Hall, West Mersea, Colchester.

SHEDS for Motor Cycles, 45s.; portable.—Stevens, 82a, Leighton Road, Kentish Town, London.

GRACK Electric Horn, with Prested battery; cost 30s., accept 7s. 6d.—33, Lincoln Street, Leicester.

UNITO Coupling, for motor and cycle; £1 1s.—Particulars, Unito Coupling Co., Dept. B., Ystrad, Glam.

FOR Sale, Eldorado V belts, price, ¾in. 9d., ⅞in. 10½d., 1in. 1s., 1in. 1s. 2d. — Pollin, belt maker, Spalding.

FARRAR'S Quadrant Loop Frames for vertical engines; 32s. 6d. each, including front forks and handle-bar.

FARRAR'S 1907 Quadrant Frames, 20½in. high, suit any engine; 50s., including front forks and handle-bar.

FARRAR'S 1907 3½ h.p. Quadrant Engine sets, very little machining required; £3 19s. set, very few left.

FARRAR'S Motor Handle-bars, 20in. long, 4s. 9d.; Lycett's patent Lightning stand, 4s. 9d. pair.

FARRAR'S Beautifully Enamelled Mudguards, 2s. 6d. pair; massive plated horns, terrific noise, 3s. 9d.

FARRAR'S Pocket Voltmeters, 4s. usually 12s. 6d.; sparking plugs 10d.; magneto plugs, 1s. 6d.

FARRAR is open to buy, sell, or exchange anything in the motor line

FARRAR wants sidecars in exchange for new £10 10s. gents' cycles, guaranteed 12 months.

FARRAR. — Send for my price list pounds saved; sole agent Premier accumulators. — Farrar, Square Road Halifax.

WHIPCORD Cycling Breeches, latest cut; 10s. 6d.; write for patterns —Booth, tailor, Longton, Staffs.

THE MOTOR CYCLE

Vol. 6. No. 259. March 11, 1908.

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The Future of Motor Cycling.

IN another portion of this issue we publish an article by "Ixion," which is a reply to Mr. J. Van Hooydonk's reference to *The Motor Cycle* in his speech during the discussion on Mr. H. G. Bell's paper, "The Future of Motor Cycling." Mr. Bell dealt principally with the question of the lightweight motor bicycle, and a summary of the paper and part of the discussion were published last week. A continuation of the discussion will be found on pages 193-5. According to our shorthand writer's notes, Mr. Hooydonk gave utterance to the following: "Being in the trade, and having to do business according to the demand that prevailed, it was no use me preaching the other gospel (the lightweight gospel). I had to make heavyweights because people wanted them. Amongst the culprits who were responsible for this public demand I am obliged to mention the press, especially *The Motor Cycle*, which for years preached the gospel of heavyweight machines." Mr. Hooydonk was entirely wrong in this statement, and we must ask him to prove what he said. If his speech was accurately reported, we cannot call it anything but a misrepresentation of facts. We hope that old readers of *The Motor Cycle* will remember our arguments a little better than Mr. Hooydonk has done, but for the benefit of new readers we will refer briefly to one or two editorial articles published on the question of horse-power, weight, and other items which touched upon this important question four years ago. A good deal of correspondence appeared in the early part of 1904 on the power and weight of motor bicycles, and we thought a postal question form circulated among our readers would cause some practical experiences to be sent in which would assist prospective purchasers in the choice of a mount. We had to deal at that time with the question of what was the requisite power or size of engine for efficiency; not what the future might bring forth. On May 23rd, 1904, we gave a synopsis of the replies to the question form in the following paragraph, and the details of the replies were published on June 6th. The paragraph read as follows: "We should be most anxious to uphold the very lightest form of motor cycle with a very small engine if by so doing we should be studying the best interests of our readers. *While we do not say that such a machine is not possible in the future,* we maintain that, for a man of average weight, the selection made by our readers is the practical one. . . . We find the average bore works out at 75.2 mm. and the stroke at 77.5. This is approximately equal to 2¾ b.h.p. at 1,800 to 1,900 revolutions a minute." Under the heading of "The Motive Power," June 13th, 1904, appears the following paragraph: "Two-speed gears are demanded by all our middle aged critics, who are, broadly speaking, not in favour of exceedingly high-powered engines."

On August 8th of the same year, under the heading of "The Ideal Machine," appeared the following: "Our readers must not assume that because we advocate sufficiency of power being of much greater importance than lightness, we regard heavy weight as a virtue; far from it. The ideal, of course, is the powerful and light machine, but *at the present time* it is impossible to attain this. If the weight could be reduced—and we doubt not that it will be—so much the better for every pound which can be taken off a machine without sacrificing its efficiency."

We shall not weary our readers with repetition, but merely wish to state facts and to confirm what we have previously written, viz., that whatever the future of

motor cycling may be, there will always be diversity of opinion. What suits one will not satisfy another. The modern lightweight motor bicycle, as an example, varies considerably in weight. We have described within the last year or two several makes of motor bicycles that we have personally tested which do not exceed about 80 lbs. unloaded. These machines we have found capable of a fair turn of speed, particularly with riders who are not above the average weight, and with pedal assistance they will ascend most hills to be found on our main roads. Lightweight machines are being supplied to numbers of motor cyclists who either do not want speed, seldom ride in hilly districts, are not averse to giving some pedal assistance, and want for various reasons as light a machine as they can possibly obtain to carry them about. We could again mention several machines that are capable of such performances, but they have without exception been described in our pages at various times. Does this look like preaching the gospel of heavyweight, big machines to the exclusion of others? With regard to passenger machines, as the lecturer only referred to motor bicycles, there was no necessity to refer to them in the discussion.

The question form referred to above will be re-issued very shortly, so that our readers may see what is the motor cyclist's ideal.

In the past, ultra-lightweight machines have not proved satisfactory. At present there are a few examples which are notable for extremely accurate workmanship and reliability. As time goes on they and other types will doubtless be further improved, and we shall some day perhaps arrive at a pattern which will be ideal and please everybody; but we are not there yet, and we will therefore conclude in the words of Mr. Cove, one of the A.C.U. members, who joined in the discussion and said: "If they did not like a heavy machine they could ride a light one."

Ignition Items in Foreign Climes.

THE question of battery or magneto is, I know, a vexed one with motor cyclists, and I do not write this with the idea of reopening any discussion on this point. But to those who own bicycles and cars with the ordinary battery ignition my remarks may be of interest, and especially to those who are, like myself, in a foreign country without opportunity for having accumulators recharged except with the aid of a primary charging battery.

I own three coils, and note the working ampèrage against each: A four-volt Waterson and Son's E.H. plain coil, with make and break contact breaker, obtained from Peto and Radford; ampèrage, 1. A two-volt Voltoo plain coil, obtained from the City Ignition Co., with make and break; ampèrage, 1/5. An Oldsmobile 1903 pattern four-volt trembler coil, with wipe contact; ampèrage, 1/4

The ampèrages quoted above were obtained by running the engines with an ampèremeter in the circuit. The Waterson and Voltoo were used on a 3 h.p. motor bicycle and the Oldsmobile on the 5 h.p. car of that name. I may here say that in the running of the engine I can discover no difference between the four-volt Waterson and the two-volt Voltoo, and the engine runs equally well with either. For nearly two and a half years I have used accumulators, with their accompanying troubles—all of them of good make—acid splashing out and eating away the tank of my motor bicycle, corroded terminals, and charging worries, for, although a Fuller charging battery is an excellent one for the purpose, there is some trouble in keeping it clean and in mixing the chemicals.

Charging Accumulators at Home.

I also found that it cost on an average extending over many months one shilling per six ampère hours. As it took about nineteen ampère hours to charge my Peto and Radford thirty-two ampère hour accumulator, it cost me roughly three shillings per full charge, and, running as I do about 200 miles per month, it required a charge of at least six ampère hours to keep it up to the mark. I therefore reckoned that, using the Waterson coil, to run about 200 miles a month, it actually cost me in charging the accumulator one shilling and sixpence per month.

The accumulator itself lasts in India about a year, after which time the celluloid warps so badly that a new one has to be obtained. No doubt it could be repaired in England, but in India it is more satisfactory to buy a new one. The cost of the accumulator was 25s., so that the total yearly cost of running 2,400 miles amounted to 25s., plus 18s.—a total of £2 3s.

I then tried a 4½ volt Hellesen Flash type dry battery costing 6s. With this and the Waterson coil I managed to do about 300 miles, and the battery was not quite exhausted even then. But I found the platinum points of the make and break pitted rather badly both with the accumulator and dry battery. It will therefore be seen that the cost of running 2,400 miles with the dry battery works out to approximately £2 8s., or, roughly, the same as with the accumulators and charging battery. The Voltoo two-volt coil runs perfectly with two dry cells giving three volts, and as the Hellesen dry battery contains three cells of one and a half volts each, I must for comparison assume that the consumption with the other coil is equal to using three batteries of three volts each. As the Voltoo coil only uses 1/5 ampère, it will run on three volts five times as far as the Waterson coil using one ampère and four and a half volts.

Therefore two Hellesen dry batteries will run 300 miles × 5 × 3 = 4,500 miles, and will cost only 12s., or say 6s. per 2,400 miles—nearly seven times cheaper than either the accumulator and coil or the Hellesen dry battery and Waterson coil. Moreover, the platinum points are hardly affected. I am also using the Siemens transport dry cells with the Oldsmobile coil, but to obtain satisfactory results I have to use four cells, and, although the ampèrage used is very small, it would obviously be cheaper to use a trembler two-volt Voltoo coil, as two dry cells could then be used to run the same distance.

For a foreign country I personally prefer the Siemens cells, as they are latent until charged, whereas the Hellesens deteriorate if kept for any length of time, and sometimes in transit.

I must end this as usual by assuring readers that I have no axe to grind and no interest in any of the companies mentioned.

NORMAN P. ROE.

The Future of Motor Cycling.

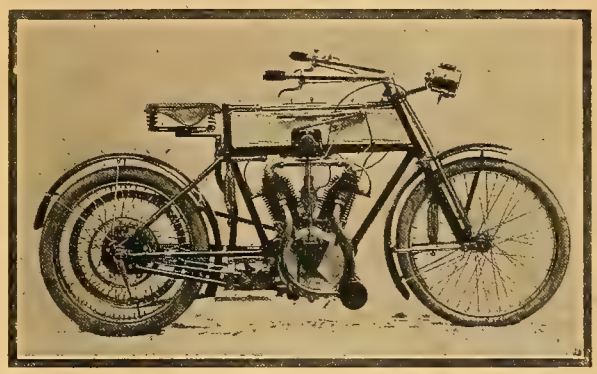
Discussion on Paper read before members of the Auto Cycle Union, by Mr. H. G. Bell, on Friday, February 28th last.

(Concluded from page 185.)

Mr. Douglas Leechman said he had listened to Mr. Bell's paper with very great interest and a good deal of sympathy. Mr. Bell was right in saying there was a big future for the lightweight motor bicycle. There would always be riders of the younger school who would like big heavy machines on which they could travel very fast, but his own interest and sympathy was with the lower powered machine. Recalling one of his earliest remarks on motor cycling, he had said that for ordinary purposes an engine of 2¼ h.p. was what was wanted. There were others who thought that a big heavy machine was very useful in its way, especially if it was desired to take a passenger, but for ordinary cycle riding he did not consider 1¼ or 1¾ h.p. was enough. Something more than that was wanted. The endeavour to make lightweight machines was very good, but it had been carried too far. He did not think a glorified pedal bicycle was what was needed. He agreed with Mr. Tuchmann that one with a 2½ h.p. engine would be quite powerful enough. If the average heavyweight and the average lightweight machines were taken, and the average struck between them, that would be the machine to his mind. 20 or 30 lbs. taken from the heavyweight and added to the lightest weight machine could be used with advantage in increasing the strength and power of the various parts of the machine. As to the front driven machine, he was not at all sure whether there was not a good deal of good in it. The front driven motor bicycle never side-slipped—until it did—and then, of course, it did without warning. As regarded outside flywheels on lightweight machines he would like to see one fitted. This question was under discussion now in *The Motor Cycle*, but he did not think it was receiving the notice it deserved. 10 to 12 lbs. in weight could be saved, and the metal could be used to better advantage by putting it into an outside flywheel, but the bearing on the flywheel side needed to be made so that it would hold the oil. As regarded a seat *versus* a saddle, he thought the former was desirable. A drop frame too was wanted; that was another point wherein the front driven machine scored one, as it enabled you to have a drop frame if you liked. As to pedals, he would like to retain them; it was better than pushing the machine and jumping on and off. The continual mounting and dismounting and running alongside was not the kind of thing to advertise motor cycling. He agreed with Mr. Hooydonk about competitions. It was difficult in competitions to bring out the merits of the small powered machine sufficiently for the public to appreciate it, though he believed the machine the bulk of the public wanted was a comfortable medium powered one. They did not want to fly up Dashwood Hill at forty miles per hour, though the press, for the most part, praised these extraordinary performances. The reason variable geared machines were not more popular was because the press had not educated the public to appreciate them. It was the single geared machine that could get up a hill like a streak of lightning. Then as to side-slipping he believed the best way out of that trouble was to have three wheels or even four.

Concerning Featherweight Machines.

Mr. Victor Hart did not agree with Mr. Hooydonk in saying the press had given no encouragement to light motor cycles. In his own experience in journalism he could tell a different tale, the journal with which he was connected claimed to be the first to think about a real lightweight motor bicycle that could travel about sixteen or eighteen miles per hour, and get up hills comfortably and take you home in safety. Referring to the Motosacoche he doubted whether it was as light with all on as was represented in the advertisements. (Several members together: "75 lbs. actual weight, guaranteed by the makers.") He would remind Mr. Hooydonk of the many competitions in which he had taken part under the Auto Cycle Club, and of his successes—no less than four gold medals, a very meritorious performance. On the question of vibration he recommended manufacturers to give more attention than they had hitherto done to reducing it. The men from whom the ranks of motor cyclists were to be recruited were not the younger generation who were athletically inclined, but men of middle age, who could afford £35 to £50 for a mount; men, too, who had family responsibilities and not inclined to run risks or be forced to perform gymnastic acts in mounting bicycles. On the question of high or low pedalling gear, it occurred to him whether it would not be possible to fit on the light machine a two or three-speed hub. ("That is done in the Sturmey-Archer gear, which is a standard article.") As to competitions, it was impossible in the case of a motor bicycle for the judges to decide absolutely on the question of reliability. The Auto Cycle Union had done its best to properly observe the machines when under trial, but it could not observe the machine every yard of the road it travelled. In the case of a car this was possible, as the judge could ride in it. He agreed with Mr.



The above 9 h.p. spring frame Bat machine has been supplied by the Premier Motor Co., Ltd., to the order of Mr. Farrington, of Evesham. After the Bat Co. had delivered it to the agents, it was fitted with a special internal expanding Roc clutch and two-speed gear, specially made for this kind of conversion.

Hooydonk that people did not want high speed up hill; for his own part, he preferred average speed up hill and down dale. Until a better method of observation was introduced, the trials must go on as they were at present conducted. Referring to the Moto-Rêve he called attention to the beautiful timing method of the magneto—it was one of the cleverest pieces of mechanism he had seen. On the Motosacoche he noticed the beautiful way the handle-bar fitments were worked. The carburetter was nicely made too. Twisted belts he regarded as an infernal nuisance. Referring to what Mr. Bell had said as to his difficulty in becoming acquainted with the working of the valve, it would be desirable for manufacturers to mark the levers in some way so as to indicate when the valve was open, and when it was shut.

Mr. Russell, being asked for his experience of twisted belts, said they were rather inclined to pull out of the small hook, and the hook by going over the jockey pulley in the reverse direction to the driving belt was inclined to bend. He had had some hooks replaced by the Motosacoche people which got over the trouble, but there was still the trouble of the belt pulling through; and instead of using the hook he had bound the belt together with an A string of a violin put through about four times, and fastened in an ordinary sailor's knot. This knot would go in between the ends of the belt, and there was no noise made by the fastener going over the pulleys; in fact, it was a catgut joint. With this joint you had the advantage of making the holes farther back in the belt. In drilling the holes the belt should be untwisted. Since adopting this catgut method of joining the ends of the belt he had had no belt troubles. True, you could not take the belt off quite so rapidly, but he had never had to take it right off the machine.

Mr. H. G. Cove said he hardly liked criticising such an excellent paper. Previous speakers had been criticising one another and not the future of motor cycling. Mr. Bell had spoken strongly in favour of lightweight machines. There would always be men who would like those, and others more favourable to heavy ones; good and bad points were to be found in both. His first experience of a lightweight machine was at the last Stanley Show, when he had the pleasure of

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riding a Moto-Rêve. Personally, he liked a heavy machine for touring, as it had more stability, although it was more difficult to manage, except in expert hands. With regard to Mr. Hooydonk's criticism of the competitions and quarterly trials, he would like to ask him one little question. Mr. Hooydonk had been on the committee of the A.C.U. for many years, and if they had managed things so badly why did he not tell them of it? Mr. Hooydonk was one of the first men who made motor bicycles—great credit to him. Why had he not kept to it? Why was he making cars now? Regarding the quarterly trials, he could say that the machines were closely watched up Dashwood Hill, and the committee of the A.C.U. were alive to their possibilities. They gave first and second-class certificates, and in these trials lightweight machines were given full credit for their performances. One point as regarded the future of motor cycling. He was not a commercial traveller, but he got about the country a good deal, and last year he spent only about £1 in railway fares. As regarded upkeep, he thought Mr. Bell had put it down too low. A great proportion of the expense was for tyres, belts, and other things, besides which a great deal had to be written off for depreciation—at least thirty per cent. per annum. He was very pleased to see Mr. Bell so cheerfully disposed; his very optimism would do a great deal towards letting the public know that there was a great future for motor cycling. He thanked Mr. Bell for his paper. It had been very instructive, and he hoped it would bring many motor cyclists into the fold. If they did not like a heavy machine, they could ride a light one.

Wanted, a More Silent Machine.

Mr. E. M. P. Boileau added a few words. He would have liked to have said more but for the lateness of the hour. He noticed the title of the paper was "The Future of Motor Cycling," but about that they had heard least of all. The chief discussion had been on lightweights *versus* heavyweights. He was sorry his friend Mr. Staner was not present, as he had some pronounced ideas about the future of motor cycling, and he (the speaker) was inclined to agree with him that there was a great future in store for the motor cycle. As regarded the construction of the motor cycle of the future, he thought it would have a frame that would absorb all, or nearly all, the road vibration. This type was coming very slowly. Then he thought the four-cylinder engine would be perfected, and when that was the case they would get a more silent machine. They had seen two examples in this country of the four-cylinder engine. The vibration from that source would then be practically eliminated. Mechanically-operated valves were wanted in the four-cylinder engine. He made several other suggestions as to other parts, and went on to say that in the discussion they had had the motor cycle had been spoken of as a luxury, but he hoped to see it come into more general use amongst tradesmen. Some were already taking advantage of it. His daily correspondence included letters from doctors and others who were enquiring for a useful machine for their professional work. He knew one or two doctors, to whom he could refer, who would tell them that the road vibration was not half so bad as was represented. The vibration was not felt so badly if the rider pressed his feet on the pedals when the machine was travelling over rough ground, as was done in riding on horseback. He disagreed with Mr. Hooydonk's strictures on the press, and also his criticisms of the A.C.U. for not encouraging the lightweight machines. When the Motosacoche entered the Auto Cycle Trials, competing as it did with machines possessing, in many cases, more than double its horse-power, it came through with flying colours; everybody agreed it was a wonderful machine. Mr. Bell had mentioned the matter of speed; there was a great deal more in this than people thought. They might say they disliked going fast, but he thought they liked it, and were afraid to say so. There was no doubt the machine that did not go fast was not liked so much as one that did.

Mr. A. Candler said with regard to the future there was hope, considering the motor cycle industry was still in its youth. The writer of the paper condemned the very thing his paper set out to prove—that was, the great benefit of lightweight machines. He said anyone who took up the motor cycle for the first year would adopt a light one, say the Motosacoche, and would want to sell it and buy a more powerful machine. The bulk of likely riders had not the means to buy a new machine every year, and if they were told this would be necessary it would keep them from taking up the motor bicycle. He favoured Mr. Leechman's idea of a 2½ or 2¾ h.p. machine. He deprecated buying machines of the lightweight type until durability had been proved, unless the users were able to buy a new machine every year. The experiences that had been given by some speakers who had only ridden such machines a few hundred miles were not sufficient.

Clubs for Lightweights.

Mr. J. W. G. Brooker said he came expecting to hear a paper of prophecy as to the future, but Mr. Bell had spoken mainly on the subject of heavy and lightweight machines, and had not given any opinion as to which would be predominant ten or twenty years hence. Personally, he thought it would be a machine of about 3 h.p. with two-speed gear and a clutch for starting and a pan seat. In a machine 75 to 80 lbs. weight it was impossible to get many refinements, such as two-speed gear, clutch, and a comfortable seat, and besides they had very light tyres. In the endeavour to reduce weight, comfort had been sacrificed. He suggested that clubs should be formed for lightweight machines; he thought they would flourish longer than mixed clubs. Even now it was customary for the lightweights in a club to go out for runs on their own, and in a few months time go in for heavyweight machines. Personally, he thought the single-cylinder engine of 3 h.p. would become the favourite; the twin-cylinder was too much for him. The single-cylinder was easily started. He thought Mr. Bell too optimistic. The majority of people were not sufficiently mechanically-minded to take up motor cycling. He would like to see *The Motor Cycle* take up the question of the lightweight machine more than it had at present. Certainly, the Motosacoche had been praised in a general way, but the lightweight motor cycle had not been encouraged. Many newspapers had dropped motor cycling news altogether, although years ago they devoted space to it.

Mr. Allen Vickers spoke from the point of view of an old cyclist, who had used a lightweight motor bicycle. He started with a 2¾ h.p. of a well-known make, but he was dissatisfied with it. Last year his attention was called to the Motosacoche and he was tempted to have one. He looked upon it as near perfection as anything he had seen in his life. As one who had ridden a push bicycle for thirty years, and he now weighed 13½ stone, he thought the Motosacoche was admirable.

Mr. W. Pratt thanked Mr. Bell for his paper for more than one reason. In particular he wished to do so because he had ridden a 1¾ h.p. F.N. with which he had considerable experience. With regard to hill-climbing he had found it everything one could wish for; he could get off at any portion of the hill and start again without trouble. He did not consider the horse-power of the lightweight was sufficient. He agreed with Mr. Tuchmann that what was wanted was an engine of about 2¼ or 2½ h.p. His experience in the London to Edinburgh run, when he rode his 1¾ h.p. F.N., was that against a head wind, or up a hill, as well as on the level road, he could not average more than twelve or fourteen miles per hour, whereas with a little more horse-power he could have got on better. Manufacturers of lightweights should think of wind resistance, and give a little more horse-power to overcome it. A machine he had a fancy for was the Fairy. There seemed to be great possibilities in it.

Outside Flywheels.

Mr. G. Connor also greatly enjoyed the paper. He mentioned that he had ridden a 2½ h.p. Fairy. There was practically no vibration, and it had 1¾in. Palmer tyres, which after 600 or 700 miles might be called new. As to noise, it made very little, practically none at all when running. It also had an outside flywheel. This he thought was a very great advantage in minimising sideslips. Never on ordinary give and take roads had he had a sideslip, whether sandy or clayey, only on tram lines and stone setts had he ever had a sideslip.

Mr. A. Tritchet said his brother's definition, given four years ago, described the sort of motor bicycles that were wanted: "The evolution of bicycles had been the evolution of their belts." As tracing the evolution of the lightweights, they started with 1½ h.p. Then when the h.p. was increased the belts gave trouble, and so the evolution of h.p. and the belts moved with each other. Finally, they got up to 9 h.p., and then the belt was sent flying, and they had gone back now to lightweights at which he hoped they would stick. He thought a motor bicycle should have a 2-2¼ h.p. engine.

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Dr. Hele-Shaw, F.R.S., said in reference to the A.C.U. mpetitions that two valuable prizes were offered, one a ver cup by Mr. A. J. Wilson, and another silver cup by r. Getting, both for lightweight machines. He felt sure e A.C.U. had done its best, and would still do more to en- urage lightweight machines. Personally, he had been very terested in the paper and the discussion. He was one of e earliest motor cyclists, and he still possessed his first ıchine, a 1¼ h.p. Minerva. He used it in the Lancashire strict, and it took him over and over again to Scotland. ter that he got a 1¾ h.p., then a 2½ h.p., then a 3 h.p., and certainly would go in for a Motosacoche, which was, he derstood, particularly suitable for elderly men, and he had w arrived at that stage of life. He confessed he was one the potterers that had been referred to, and he liked to get ng comfortably. Being a family man, he had latterly used notor car in preference to a motor bicycle, but he meant to ve a little low powered motor bicycle again. He would t give up his pedals for anybody. He wanted to go quietly. was glad to find such a consensus of opinion in favour of derate weight motor bicycles with more moderate power d with a clutch. He described how he came to invent the tch for motor cars which bore his name. It was the out- ne of his experience with a De Dion tricycle. The present chines were not built to receive a clutch. Motor bicycles nted standardising, and to be so designed that a clutch uld be fitted on to the frame. He recommended manufac- ers to go in for producing a comfortable machine, and to the word comfortable in big letters in their advertise- nts. With a really comfortable machine, the number of ers would be greatly increased, and ladies too ought to be ered for. They have taken to motoring very enthusiastic- y. Why should they not take to motor bicycling? They re more time on their hands, but a machine suited for them st be essentially comfortable, with nothing but pedals to ih.

Mr. Bell replied on the discussion. With regard to Mr. chmann's remarks, he thought they had been answered other speakers. Whilst thanking Mr. Hooydonk for his d expressions, he thought he was a little drastic in his demnation of the quarterly trials. He was pleased to r Mr. Leechman give his support to machines of moderate ver. He was pleased also to hear Mr. Russell's experience h the Motosacoche. This gentleman also mentioned idle-bar control. He himself had found this a splendid angement. It could be seen on the 1908 Triumph, and vas very useful. As to noise, he did not know how anyone ld say that lightweight machines were noisy. There was urring, but nothing worse, except in the F.N. machine, ich was noisier than some of the others. He liked the ry. The one he rode went very well indeed, but needed good many adjustments to make it a good hill-climber. was one of the fastest of the lightweights he had tried; fact, he could not run it very slowly. Mr. Hart had referred to the question of vibration. Personally he did not suffer any ill effects. Only once did he feel a slight stiffness across his shoulders after a long ride. With regard to depreciation, he thought thirty per cent. was too much to write off every year; for instance, a Triumph which cost £47 10s. a year ago was surely worth more than £35 now. With regard to the press, he had tried his best to get editors of papers with which he was connected to insert reports of competitions, and with some success. One or two speakers had, he thought, taken a wrong view of his paper, where he said that the lightweight was a first-year machine. There would be a certain number of men who would be induced to take up motor cycling with a lightweight machine and never go on to a heavyweight. That was why he welcomed the lightweight machine. It was not going to oust machines of other types, but would bring recruits to the ranks of motor cyclists and lead the way in some cases to the heavier machine. A man starting with a heavyweight machine might throw it up, as he had known cases in his own locality. If they had commenced with a light machine they would have stuck to it. He heartily thanked all present for the kind way his paper had been received and for their candid criticisms.

The meeting closed with votes of thanks to the writer of the paper and to the chairman at the late hour of 11.30.

The discussion was one of the most spirited that has taken place at any meeting of the A.C.U. The room was crowded right up to the close.

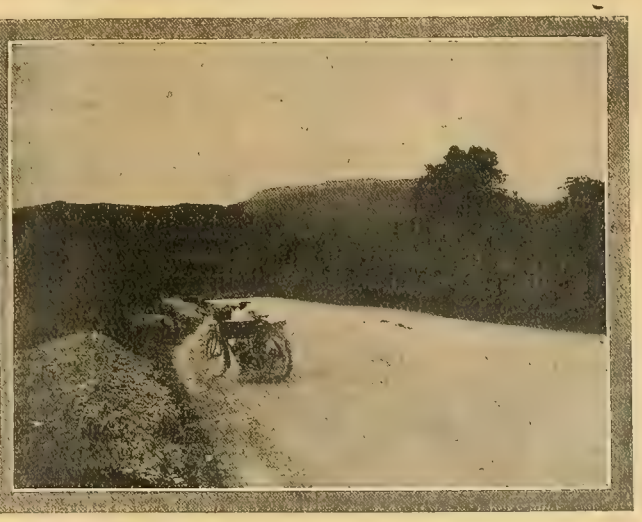
A. W. Wall, Ltd., Dartmouth Street, Birmingham, inform us that their 1908 catalogue of Roc motor cycles is now ready, and the firm will be pleased to send a copy to any of our readers on request. Attention is directed to the fact that A. W. Wall, Ltd., are now ready to undertake conversions from fixed gears to the Roc clutch speed gear system.

We are in receipt of Messrs. W. and R. Jacobs' latest catalogue of Electary motor appliances. Messrs. Jacobs' chief specialities are accumulators at moderate prices and electric headlights. They also sell motor coils of various sizes, among which we may mention the Voltoo coil, which will work on two volts. Other useful accessories illustrated in this catalogue are a handy motor cycle switch, a new belt punch, various simple and ingenious terminals, belts, and belt fasteners.

Ready, as at all times, to supply anything for which they have evidence of a demand, the N.S.U. Motor Co., Ltd., are now stocking some very soundly-designed sidecar and forecar attachments for use with their twin-cylinder motor cycles. With slight modifications, these passenger attachments are adaptable to any type of machine, and they promise to be very popular. Their design, the material used, and the workmanship bestowed thereon are quite up to the high standard marking all N.S.U. productions.

Grindleford Bridge, Derbyshire.

(See next page.)



The bleak moors just below the "Fox House" Inn.

A WINTER'S SPIN
IN NORTH DERBYSHIRE.

WINTER riding—when indulged in during cold and frosty weather, when the trees, bushes, and hills are white with hoar frost, the roads hard and dry, and the sky clear—has a certain charm of its own. The keen wind has a most exhilarating effect both on one's self and also the motor, which always seems to run better during cold weather, presumably because the engine keeps cooler. At any rate, "overheating" troubles are conspicuous by their absence. Needless to say, one's clothing must be warm and carefully chosen.

I have had some very pleasant runs on frosty days this year, and the one I am about to describe was a two hours' spin through one of the hilliest parts of the Peak District of Derbyshire. Starting from home with a two and a half miles hill up to the moors, a mile of comparatively level road over the moors brought me to a long downward descent called Froggatt Edge (which is about four miles in length), whence a magnificent view of the Derwent Valley is obtained, with Grindleford in the valley below, and the mountains of the Peak showing blue in the distance.

At the bottom of Froggatt Edge lies the little village of Calver; then a run of five or six miles through an avenue of trees past the villages of Hassop and Longstone brings one to the head of Monsal Dale. The scene as it suddenly bursts to view is one of the finest in Derbyshire, and looked particularly beautiful on this occasion in its winter garb with the sun glistening on the winding River Wye.

After a ten minutes' halt to admire the view and to have a quiet pipe, a run of six miles or so over wild moorland brought me to Eyam, which is a very quaint old Derbyshire village the inhabitants of which were practically wiped out by plague somewhere about the end of the eighteenth century. The historic "plague cottages" in which the scourge first broke out are one of the features of interest. The church, Eyam Hall, and a pair of ancient stocks also demand inspection. From Eyam the road runs along a ridge of hills for about a mile, and then taking a sudden turn to the left drops down a very steep hill to Grindleford. Beautiful views of the country round can be obtained during the descent of this hill, the frowning black rocks of Froggatt Edge being especially noticeable across the valley. The hill into Grindleford, which has a gradient of at least 1 in 7 in places, has an abominable surface, which uncomfortably manifests itself if one happens to be riding up the hill, as, owing to its steepness, it has to be taken at a fair pace if a single geared machine is to succeed in climbing it. With two speeds, however, matters are different.

At Grindleford the Derwent is crossed by a fine old stone bridge, and then the long Grindleford Hill is encountered, about two and a half miles in length, the steepest portion of which occurs as the road is passing through Padley Wood, about two-thirds of the way up. Consequently, unless one has been driving carefully overheating will occur just as the steep bit is reached. The hill, however, presents no difficulties to a twin of a well-tuned 3 or 3½ h.p. machine. At the top of the hill is a famous inn called the Fox House, a very old place, standing on the moors, and a recognised stopping place for horse and motor. From there my route home was over Dore Moor, practically a six miles down hill run, which ended a most enjoyable spin of about thirty-six miles. There are many other very interesting runs in the Peak of Derbyshire for hill levellers, although the roads are not exactly of the best, but the beautiful scenery amply atones for the inferior road surface.

C. E. T.

View of Monsal Dale, Derbyshire, from the roadway.

A Reply to Mr. Hooydonk. By "IXION."

Mr. Hooydonk and the Lightweight Question.

'T is not often I find myself at issue with our good friend Mr. Hooydonk, but I really think his memory had temporarily failed him a little at the A.C.U. the other night, when he took part in the discussion on [r. Bell's fine paper on "The Future of Motor Cycl-ıg." The whole trend of his remarks was to the effect ıat there had been a conspiracy in 1904-5 to exalt the eavy high powered motor cycle at the expense of the ghtweight; and he particularly named this paper as eaching the gospel of the heavyweight. I always mpathise with Mr. Hooydonk on one point, and that , the slowness of motor cyclists to realise the value of o-speed gears, but in this other respect he has, to my ind, grossly misrepresented both public and press. I, yself, through all the period his complaints cover, rmed one of the riding public and one of the press, ., I rode as big an annual mileage as any man, and wrote a good deal for the motor press. I intensely sliked the weight of standard machines, and four con-ıutive years I find from my log I owned a lightweight, ., 1¼ h.p., 1¾ h.p. (a Phœnix), and in the next o years two machines of 2¼ h.p., all four of them as ht as I could get them; and I unhesitatingly say that til last year, when I rode the current pattern of the otosacoche, I had never once bestridden a lightweight it was any earthly use. My 1¼ h.p. was badly de, suffered from engine troubles, and was very un-nfortable. My 1¾ h.p. was too heavy for its power, led on hills, and suffered atrociously from beltslip; ile of the two light 2¼ h.p. machines one was roughly unreliable through bad workmanship, and other vibrated so shamefully it was a penance to sit it. The best alternative I discovered during those rs was a tremendously weighty, top-heavy, and un-nfortable machine, which many riders will remember he 2¾ h.p. Excelsior—which I always hold was the t motor bicycle that was any real use ever produced this country. In spite of its manifest and serious advantages, for practical riding it was streets ahead any other machine then made, except the 3 h.p. adrant, which came on the market a year or more r. Ahead, because it was thoroughly reliable, and ause it would climb hills. The press knew this, and public knew it, and so it and the 3 h.p. Quadrant e the machines that sold. The public may buy a l machine one year, but they do not buy one two rs running; and it was the public quite as much as press that killed the earlier and rubbishy light-ghts. *The Motor Cycle* preached not the gospel of heavyweight but the gospel of efficiency.

Speed v. Efficiency.

Mr. Hooydonk was also very bitter about the promin-e given to speed in public trials. Again, he must me the public, not the press. The sporting British plic has a great penchant for speed, and at any hill-mb it pays more attention to the fifty mile an hour ht of the most powerful engine with a midget in the dle than to an ascent which is a marvel of efficiency, h as a tiny Trimo stopping halfway up Fernhurst h two big men on board, and then climbing the 1 in on a restart. Foolish, no doubt, but it is so. But uch resent Mr. Hooydonk's strictures against *The tor Cycle* on this score. He, at any rate, has not ked publicity in its columns, and no man's achievements have received greater notice than his. I find articles emphasising the need of variable gears in the very earliest issues of the paper. I, for one, have preached the same gospel as Mr. Hooydonk—lightweight and efficiency—and I have preached it, and still preach it to very deaf ears. But the day of conversion is at hand. The market is at last full of lightweight machines and full of two-speed gears.

Heavy, High-powered Machines.

Thirdly, I differ *in toto* with what Mr. Hooydonk said about high powered machines. He described his misery in riding a little 2¾ h.p. single-cylinder mount, scaling about 170 lbs. He must admit that the motor cycling public of to-day knows the capabilities of the different types of machines. Most of them have from three to five years' experience, at any rate, and have owned four machines. What are they buying to-day? Well, one of the best firms makes a lightish single-cylinder and a heavyish twin. They sold last year forty of the heavy twins for every single-cylinder they disposed of. Deduction? Motor cyclists do not mind weight so long as they can have speed, comfort, and reliability with it. The lightweight of low power is undoubtedly booming, but it is not going to snatch many adherents from the number of those who are now riding big, well-sprung twins. They are going to enlist in our ranks the timid, the feeble, and the elderly. But they will never drive the twins off the road, and I for one doubt if they will ever outnumber the twins. The cycling public is not *lazy*. It does not ask for motor cycles because it is too weary to pedal itself about. It asks for self-propelled cycles in order to increase the diameter of its circle of locomotion—to give it the power of visiting pleasant people and pleasant places at a considerable distance and at a minimum of expense. The faster you can go the farther you can travel in a day to find the pleasant person or the pleasant place, and the longer you can spend with the pleasant person or at the pleasant place when you arrive there. If the trade ever turns out a lightweight that is *as fast* and *as comfortable* as these present heavy twins, the heavy twin will die out, but not before. One does not like or dare to speak of mechanical impossibilities in these inventive days, but, as one speaker said at the A.C.U. discussion, will the lightweight ever be able to stand the racket to which the needs of some riders force their machines? One friend of mine is a typical example. He lives 125 miles from Brooklands, and he seldom misses a day's racing there; he gets there in time for a comfortable lunch, and he has his tea in a leisurely fashion when racing is over, and is not very late home either.

I scarcely dare to ask an old record holder and racing man like Mr. Hooydonk whether he knows the fascination—the intoxicating fascination—of speed; but surely that element cannot be overlooked in discussing the future of motor cycling. It is bred in every man, and it is an immensely potent factor in the grip that motoring has of the nation. A man is always seeking something faster. He may enjoy a lightweight for his first machine, but in about fifty cases out of a hundred he will have a 7 h.p. twin with a trencher-sized engine pulley for his third. Immoral, Mr. Hooydonk? Certainly, if you like to call it so, but "it's only human nature after all."

QUESTIONS & REPLIES

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Cost of Running with Sidecar.

I have decided on purchasing a twin-cylinder Vindec motor bicycle with two-speed gear, in conjunction with a Montgomery sidecar, and hope you will think this a wise choice. I am writing to ask you if you could tell me what would be the probable cost of running this combination about 3,000 miles per year, with an average amount of luck?—H.B.R., Cornwall.

The combination would be a good one. The cost of running would be about 2s. to 2s. 6d. per 100 miles for petrol and oil. Tyre covers should last about 2,500 miles each.

Rear Lights on Tricars.

"Road Rider" says it is compulsory to comply with a tiresome unequal law for a tricar to carry a rear light if over 3 cwt. Will you kindly let me know if this is correct, as I do not remember seeing or hearing of this before, and I have used a tricar that weighed more than above for hundreds of miles without rear light. —H.C.E.

Yes, any tricar weighing over 3 cwts. unladen, which has been registered as a car, uses a car size number, and has paid the car license (£2 2s.), is bound by law to carry a rear red light. The hardship is not a great one, and, moreover, it is highly advisable in our opinion to carry a red rear light on tricars and passenger attachments. If the tricar is registered as a motor cycle a rear red light is not compulsory.

A Novice's Queries.

I use an F.N. motor cycle. This cannot be pushed to start because the friction of the unweighted wheel will not overcome the compression. (1.) Is not this too much? and would it be an improvement to reduce compression by a packing between crankcase and cylinder? Would the exhaust valve lifter require lengthening to suit? (2.) This machine has three grooves in piston but only two rings. Is this right?—L.L.C.

You are evidently a beginner, and do not adopt the proper course. No rider pushes to start without raising the valve lifter, which releases the compression. Do not under any circumstances interfere with the compression by placing packing between crankcase and cylinder, because it is not necessary. In pushing or pedalling to start you should lift valve lifter, get up a speed of five or six miles per hour, release valve lifter, and the engine will start if all is in order. There should be three rings in the piston. Evidently one has been broken and removed, and not replaced. You can obtain replacements from the F.N. Motor Agency, 106, Great Portland Street, W.

Starting in Cold Weather.

My motor bicycle requires much energy in starting, even on the stand, but will continue all right when started. Electrical connections are sound, and carburetter quite clear. The induction pipe is eighteen inches long. Do you think the carburetter is too far from the engine?—WATCHMAKER.

If the petrol in the tank is not stale, probably the fixed air supply admits rather too much air during the winter. Try fitting a shutter which will partially close this, which you can open after the machine has got going. We presume you adopt our frequent advice to inject paraffin into the cylinder head and press the float agitator before attempting to start. In our opinion the induction pipe is too long, and engine would probably give better results if it were shortened, and carburetter placed closer to the engine.

Driving with a Two-speed Gear.

I hear from Phœnix Motors, Ltd., that with their two-speed hub gear the bicycle must not drive the engine on the high gear, or damage may ensue. May I ask if this is generally known, as I have unfortunately invested in ignorance? I do not see how one is to drive. The gear lever is too stiff to use except when quite necessary, and it appears that one cannot even switch off when on the high gear. What can one do in traffic or on coming to a corner? One does not always want to change down each time, especially when this always means steering and controlling with one hand only while changing.—WIM.

We were not aware that it would damage the gear in question to let the bicycle drive the engine when the high speed is engaged. We cannot understand why this should be the case. When turning a corner, if you do not wish to change speed, the best thing is to raise the exhaust valve.

Explosions in the Silencer.

Can you explain to me th cause of violent explosion occurring in the silencer? The take place when I switch o after switching off to take corner, or in traffic. The noise very loud. Engine is a 3 h.p. Fafni and the exhaust pipe is 2ft. long, 1i diameter, and no sharp bends it. The engine was recently take down and valves ground in. Tl engine does not pick up as I shou like, and seems to jerk rather at lc speed. The gear is 4½ to 1. Co pression very good.—L.H.S.

The explosions are caused by u exploded charges of gas collecting the silencer, and being fired by the ne charge which is ignited. The troul may be overcome by reducing the fix air supply or by closing the extra inlet. Also use the exhaust val lifter for controlling the speed inste of switching on and off.

Misfiring due to Magneto.

I have just bought a secor hand 5 h.p. twin Peugeot w magneto ignition. When timing lever is advanced little more than half-way spark occurs in the back cylind but in the front instead. The rea is that when the timing lever advanced the brass segment on distributer is still just making c tact with the carbon pencil of fr cylinder, and has not turned enough to make contact with carbon pencil of the back cylind Of course, if the timing lever is tarded a little, the segment moves the front cylinder pencil and on the back one. I might add that timing lever is not over advan beyond the stop, as this missing the back cylinder occurs when it advanced just over half-wa P.T.H.

We have never heard of a similar c If this is really the cause of trouble, the only thing to do will be shift the distributer slightly so t contact is made with the back cylin and not with the front. We have o experienced trouble with this type magneto with one cylinder stopp firing with the spark lever advanc but this has been due to a worn f ring, and we should almost be incli to advise you to get a new fibre g and try this first, before altering distributer.

ALMOST 60 MILES AN HOUR AT BROOKLANDS!

On Feb. 25th, at the first motor cycle race ever held on the Weybridge track, Mr. W. G. McMinnies, on a 3½ h.p. Triumph, rode over a timed half-mile at the rate of

59·8 Miles per Hour

with the wind, and over the same distance at 57·88 miles per hour against the wind; and one lap—2 11/16 miles—in 3 min. 6 sec. = 53 miles per hour. His machine was fitted with

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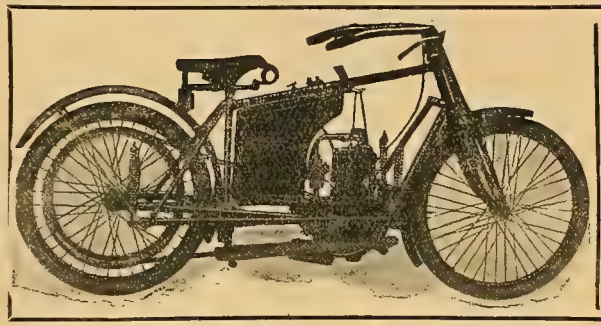

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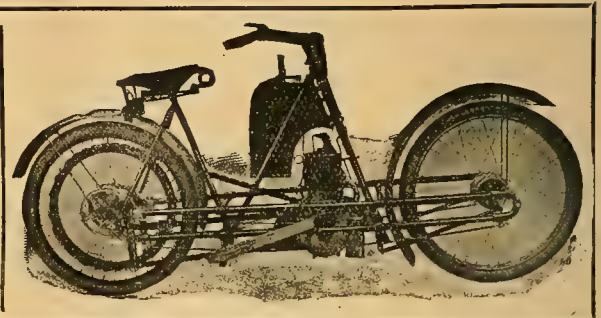

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An Occasional Misfire.

My machine is a 3½ h.p. 1907 Triumph, magneto, which has always gone well at high or low speeds until recently. I find now that if I throttle down for six to eight miles per hour the engine will only run in jerks on the level or down hill, and of course does not fire regularly. When the throttle is opered the machine goes much better, but still misfires occasionally on hills. Do you think the fault is in the carburetter, which is the one that was supplied with the machine? The petrol pipe is clear, and the carburetter floods all right. I have also taken out jet, which seems all right. The magneto and plug have been tested and are in order.—W.T.H., Isle of Wight.

The trouble is probably due to the fibre ring of the magneto being worn. Try a new ring, clean the contact breaker with petrol, and face the platinum points if they have become pitted. The makers of the magneto state that the amount of opening of the points should be .4 mm. If you have not dismantled the carburetter it would be advisable to do so, and carefully examine the copper air funnel for cracks.

Relation of Power to Cost of Running.

Does a 6 h.p. motor cycle cost twice as much to run as a 3 h.p. machine or more? If a 6 h.p. single-cylinder machine is put at a long hill, fairly steep, at a slow engine speed, will it pick up without pedal assistance, and would it be sufficient to take a sidecar with a ten stone passenger up any hill to be met with in England? Will the engine start firing when going at walking pace with magneto ignition, provided the carburetter is adjusted correctly?—F.R.

We should not like to say that a 6 h.p. machine would cost double as much as a 3 h.p., but its running expenses would certainly be far in excess of the other. Of course, with so high a horse-power the machine would behave far better on a hill than the smaller machine would, but again the all important question of gearing comes into effect. If the gear is low you can start slowly and accelerate very rapidly. This trouble of gearing is even more emphasised when a sidecar has to be taken. The whole question resolves itself into this, if the hill is taken at a fair speed no trouble whatever will be experienced; if, for any reason, you are stopped on a hill of 1 in 10 with a sidecar attached, restarting would be almost impossible without a change-speed gear. The same remarks apply to starting with a magneto. If gear is low enough the engine will start at walking pace; if the gear is high it will not start at a walking pace. So large a single-cylinder engine has to be geared reasonably high to get the best results out of it, and if this is done it becomes somewhat difficult to handle. In any case, do not buy a single-cylinder engine of 6 h.p., as the vibration is excessive. A 6 h.p. twin would be far better from every point of view.

Increased Power or Lower Gear.

My tricar is a 3½ h.p. chain-driven Rover, geared 5½ to 1, weight of machine 200 lbs., weight of passengers twenty-four stones. Would you recommend me to fit a Phelon and Moore gear on to my 3½ h.p. engine, or buy a 5 h.p. twin engine and have the frame altered to suit, and use it without two-speed gear? If you know of any gear more suitable than the P. and M. please state?—A. NEWBY.

Probably the cheapest and best way out of the difficulty would be to fit a Phelon and Moore two-speed gear and chain drive.

Loss of Power and Overheating.

(1.) My engine has lost power and quickly overheats. I have cleaned out carburetter and strainer. The supply of gas is ample, and I can open the air lever without engine missing. There is a good spark, and engine fires regularly at all speeds on stand, but does not pull on the road. The timing has never been touched, but I notice the exhaust lift is only 3-16in., while the inlet has ¼in. good. Has the exhaust cam got worn and closes valve too soon, which would choke engine and cause overheating which is present? (2.) What is the average mileage to be obtained from Hellesen's Flash dry battery, and do they take the place of accumulators without further alterations?—S 863.

(1.) You might try fitting a new exhaust valve spring, and if this does not cure the trouble take off the timing gear cover and see if the cam is worn, which is very likely the case. A restricted lift of exhaust valve would cause overheating and general loss of power. We presume you have made sure there is only 1-32in. clearance between the tappets and valve stems. (2.) The batteries in question should last about 1,000 to 1,500 miles. They work exceedingly well provided an economical plain coil is used.

Misfiring in One Cylinder.

My four-cylinder F.N. fires perfectly on the three back cylinders. The front one only fires after running about a mile, and then gives up on hills, but fires again on the level. Have tried two front cylinders only, but the second only fires; tried two back, and both fire perfectly. Have fitted new inlet and exhaust springs, ground in valves, exhaust valve proper lift, carburetter clean, distributer clean, and contacts of magneto perfectly flat and clean. There is a good spark at plugs (wire to earth good spark). Do you think it is the level of petrol too low, and would the needle valve want grinding in?—PUZZLED.

It seems that the trouble is more due to carburation than to any defect in the magneto or plugs. You might try, however, fitting a new plug in the defective cylinder, and if this does not cure the trouble, slightly raise the level of the petrol in the carburetter by moving the weight of the needle valve very slightly nearer the point. In ascending hills with old-pattern four-cylinder machines the oil ran to the rear end of the crank chamber, because there were no divisions in crank chamber to keep level of oil up to a given point, and thus starved the front cylinder. This may be your trouble.

Power for Touring in Hilly Counties.

I drive a light tricar, 2¾ h.p. De Dion engine, with water-cooled head, ⅞in. belt, Nala hub (gears 5 and 10 to 1), Bowden band brakes to front wheels, Gripwell to back; combined weight of passengers about nineteen stones. The tricar is satisfactory for this district, but in a month or two I am contemplating a tour in Devon and Cornwall, spending about a fortnight in the West, the roads of which I am well acquainted with per push bicycle. (1.) With engine in good touring tune is power sufficient, considering number and severity of gradients? (2.) Would the gear be likely to stand the constant and continued strain of low gear work? (3.) What is the best lubricant for gear wheels of Nala hub? (4.) Can you suggest a better method of braking back wheel, for if clutch mechanism went wrong the belt rim would be free? (5.) What size belt would you advise? (6.) What is the best method of preventing tricar from running backwards when a sudden stop occurs on a steep hill, *e.g.*, through belt breaking?—W.P., Essex.

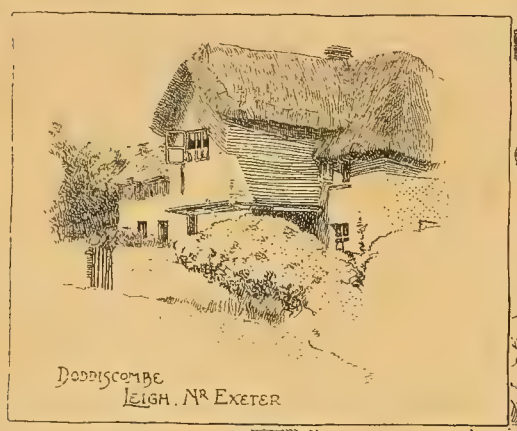
(1.) The power is only just sufficient for the country in which you intend touring, provided you will be satisfied with a moderate average speed. If you can reduce boss on engine crank case sufficiently to fit an adjustable pulley on the engine shaft, you could reduce the gear still further if necessary. (2.) We think the hub would stand the strain. (3.) Gear grease should be used for the hub, not oil. Query the makers on this point. (4.) You had better have an independent Bowden rim brake fitted. (5.) A 1in. belt would not be too large. (6.) By fitting a powerful rim brake, as we have suggested.

We are advised that on motor bicycles shown at the Manchester Motor Exhibition (Bellevue), Continentals were fitted to a greater extent than any other tyres.

Mr. T. Silver wishes to inform his numerous friends in the motor cycle world that he has no connection now with the Quadrant Co., and letters intended for him should be addressed to 2, Gaverston Road, Leamington.

¶ *"THE AUTOCAR," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. Issued weekly.*

Memories of a Summer Tour on a Motor Cycle.



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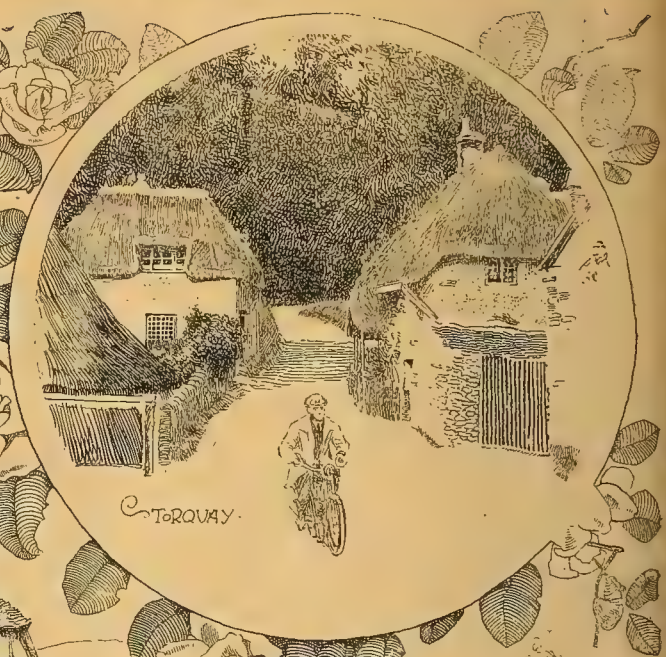

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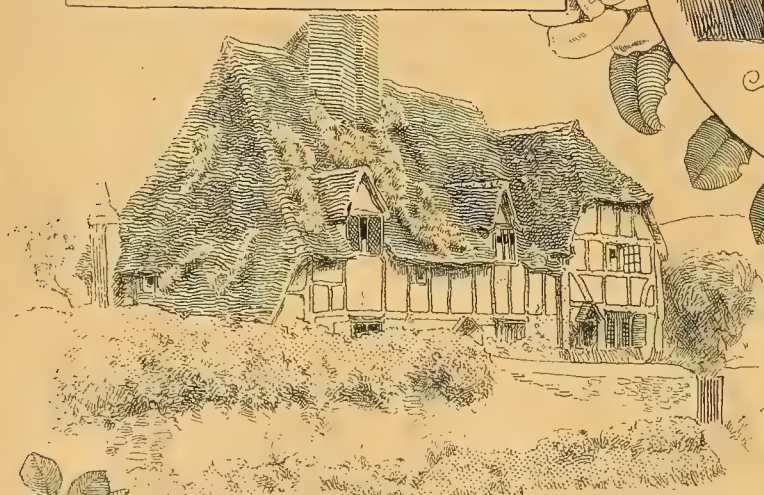

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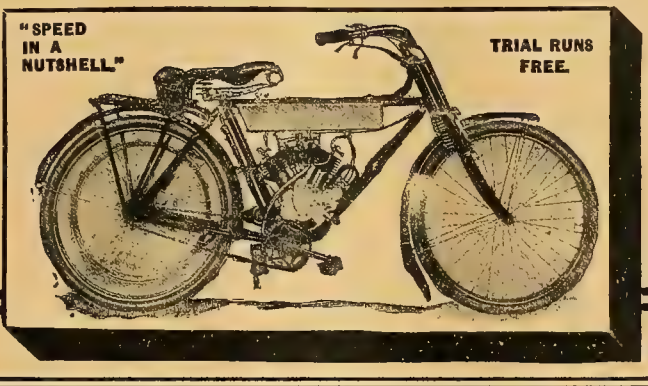

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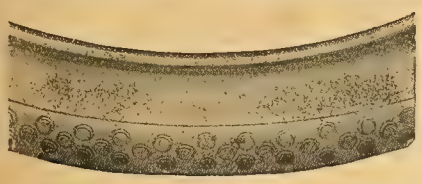

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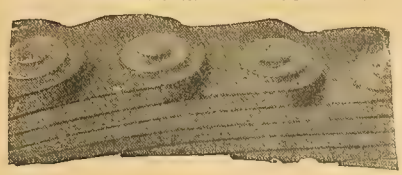

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Single cyl., 3 h.p., £37.
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3½ h.p.
£39.
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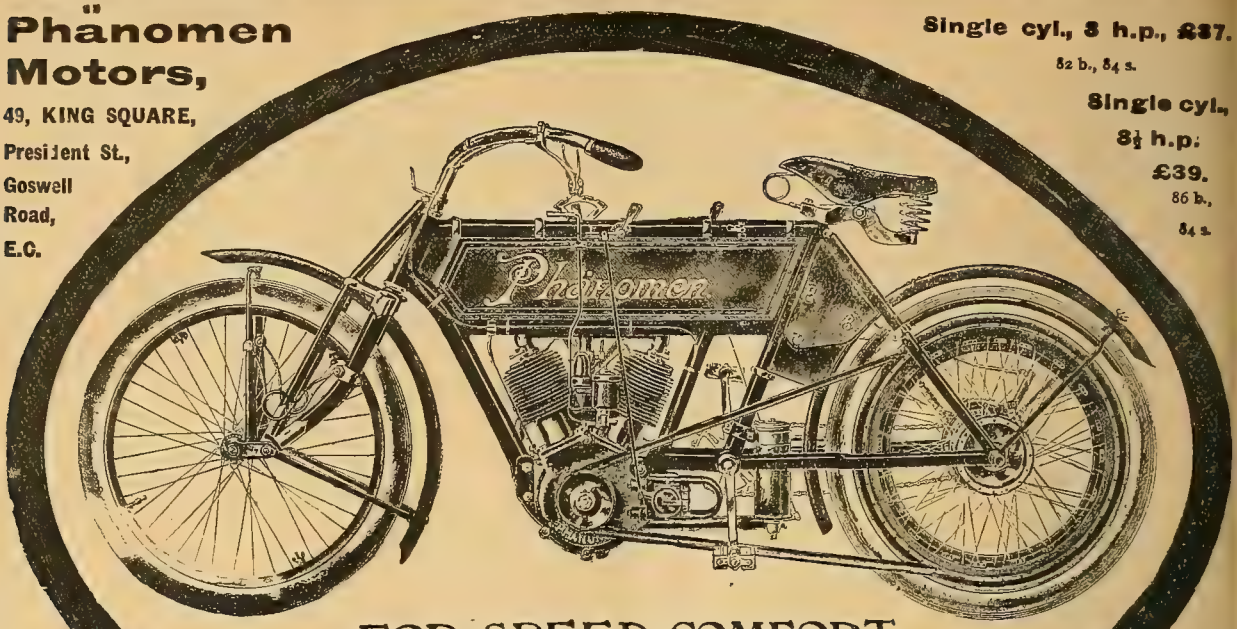

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Twin
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£46.
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Twin 6 h.p., £50.
74 b., 84 s.
S.B. MAGNETO INCLUDED.

NALA HUB,
£12 extra
on all Models.

"K.D."

FEATHERWEIGHT MOTOR CYCLE

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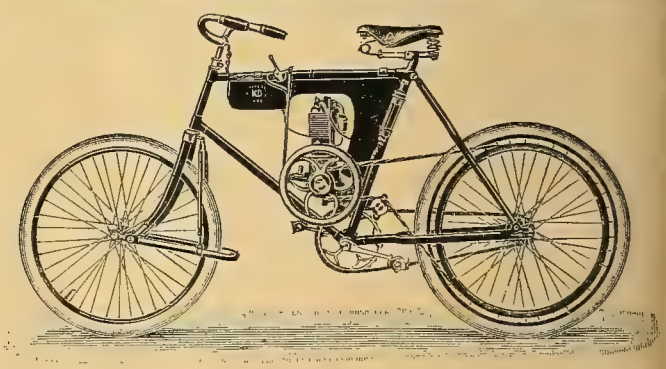


1¾ H.P. Weight 69 lbs.

With a view to advertising our K.D. light weight motor cycle, we are offering to every reader of "The Motor Cycle" an opportunity of acquiring one of these popular and efficient 28 guinea machines absolutely gratis.

This cycle was exhibited at the Stanley Show and created great interest owing to its efficient construction and power for weight.

All you have to do is send for one of our mouth sirens, price 2/6, and upon receipt of your P.O. we will forward one of our latest mouth sirens (guaranteed the best road clearer on the market), which is in itself full value for the money, together with a descriptive leaflet of the K.D., and an entry form for you to fill up stating the reason why you consider you should be awarded a K.D. free. These forms will be forwarded to Mr. B. H. Davies, the popular writer for "The Motor Cycle," with only a number as a means of identification, and he will judge which is the best reason and award the K.D. motor cycle to the winner. The bicycle can be seen at our showrooms, where all communications are to be addressed:

64a, POLAND ST., and 13a, BROAD ST.,

Competition closes May 15th, and the Winning "reason" will be published in "The Motor Cycle," on May 27th.

LEO. RIPAULT & CO.,

Sole agents for the K.D. eatherweight.

In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

CURRENT CHAT

Special Feature

THE FUTURE OF MOTOR CYCLING.

Readers of "The Motor Cycle" all over the World.

A Middlesex reader tells us that *The Motor Cycle* is regularly read by his brother, who is living in the Andes, 15,000 feet above sea level. He thinks this is the highest point at which *The Motor Cycle* is read and digested.

Another Police Trap.

We are advised of a police trap in Hyde Park between Lancaster Gate and the drinking fountain 300 yards from the Marble Arch. Our informant says that it is proposed to work the trap in the morning only for some time.

Well-known Motor Cyclist Married.

At Scott's Memorial Church, Norwich, on the 27th ult., Mr. Stanley Webb was married to Miss Herwin. Mr. Webb is the maker of the Dermatine motor cycle belt, and curiously enough his wife is the sister of the patentee of the Simplex belt fastener.

Auto Cycle Union News.

At a recent meeting of the committee of the A.C.U. it was announced that the following clubs have lately become affiliated: The Sheffield and Hallamshire M.C.C., Worcester M.C.C., Cambridge University M.C.C., Scarborough and District M.C.C. The Birmingham M.C.C., which recently gave notice to cancel its affiliation to the A.C.U., has now decided to re-affiliate.

At the annual general meeting of private members of the A.C.U. the following delegates were elected to represent the views of the private members at the annual general meeting, which will be held on March 21st: Messrs. B Chatterton, F. Densham, H. P. E. Harding, W. Pratt, W. Gunn, J. W. G. Brooker, S. E. Pemberton, A. G. Reynolds, V. Hart, J. Van Hooydonk, H. R. Dougal, H. G. Cove, H. Densham, A. C. Pemberton, D. K. Hall, R. V. C. Getting, E. Nelson, T. Blanch, E. J. Chapman, E. R. Russell, E. W. Ashworth, H. G. Bell, H. C. Ebbutt, J. Hawkins, and A. Sharpe.

The following were nominated for election on the A.C.U. Committee to represent the private members: H. G. Cove, A. Sharpe, J. W. G. Brooker, V. Hart, H. P. E. Harding, A. G. Reynolds, W. Pratt, and B. Chatterton. The above names are a recommendation to the council, the meeting of which will be held on the 21st inst.

The annual report, balance sheet, and revised rules were then read and discussed. Mr. Robert Todd reported that he had represented the interests of motor cyclists on the occasion of the R.A.C. deputation to Mr. Asquith concerning the taxation of motorists. Mr. Todd stated that he had put the matter before Mr. Asquith in the fullest possible manner.

Members of the A.C.U. are reminded that under the terms of the new agreement with the R.A.C. they have become *ipso facto* "Associates," and entitled to all the privileges of associate members of the R.A.C., including the use of reading and writing rooms at 112, Piccadilly, with telephone and messenger service and arrangements for light refreshments.

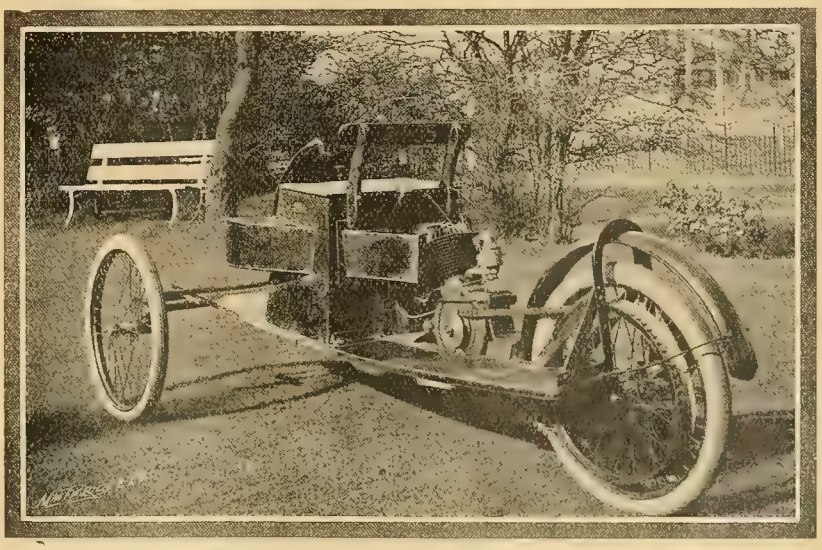
It has been found necessary to alter the venue for the annual general meeting of the council to be held on Saturday, March 21st. This meeting will *not* be held at the Criterion Restaurant, as originally fixed, but at the Imperial Restaurant, 60 and 62, Regent Street, W. Delegates please note.

A Unique Offer.

Now that the days are lengthening, and provided the clerk of the weather is favourably inclined, we shall soon be enjoying a larger share of sunshine. Those of our readers who are interested in photography will be overhauling their cameras and other paraphernalia of the pastime. Many will find that they require new apparatus, and will be anxious to dispose of their second-hand goods. An opportunity to do this, and at the same time secure a handbook on photography free of charge is provided by *Photography*. Full particulars of the offer appear in each copy of the current issue (March 10th), which we would advise every motor cyclist-photographer to obtain.

Chief Constable Complains.

The Chief Constable of Surrey has written to the Automobile Association pointing out that the A.A. scouts are in the habit of spying out those portions of the road which have been measured by the police, and warning motorists of the presence of police. The Chief Constable considers that the proceedings of the scouts are a deliberate interference with the duties of the constables, and asking that instructions be given to prevent a repetition of the obstructions. The Automobile Association has replied that the instructions given to the patrols are to warn motorists against furious driving, to note and report cases of reckless and inconsiderate driving, and to render assistance to the police.



A novel tricycle built two years ago by a Birmingham motor cyclist with the idea of overcoming the vibration caused by exceptionally bad roads over which he had to ride daily to business. The seat shown in the present illustration was replaced by a new bucket seat, the sides of which formed the petrol tank. Observe the plank side-stays, which consisted of two springy ash planks ¾in. thick and of a total width of 22in. The angle iron stiffener over the back wheel is also worthy of notice.

The Easter Holidays.

Motor cyclists are reminded that Easter will be with us in six weeks from the present date, and those who have not ordered their new machines would be well advised to do so without delay. Makers are busy, and there are always a number of disappointments.

The Opening Hill-climb.

Already there is every indication that the Lewisham Automobile Club's opening hill-climb will be a record one as regards entries. Hon. Sec. Renner informs a correspondent that he is receiving application for entry forms by almost every post. One enquiry is from an owner of a 12 h.p. machine. In the tricar class a powerful four-cylinder is already entered.

Motor Cycles Gaining Ground.

"R.C.," the writer of "Notes on the Road" in the *Yorkshire Daily Observer*, says with regard to motor cycles: "Already there are indications that this year they are going to be more numerous than ever, which is not at all surprising when it is borne in mind that they can be bought at almost any figure between £5 (second hand) and fifty guineas. Their undoubted reliability, proved in many a stiff competition, and the fact that in the hands of an experienced rider they are practically an all-weather machine, is all in favour of their increasing use. With ordinary luck the cost of upkeep is not heavy, and against this may be set the wider field for touring that they open up to the rider."

Lamps and their Supports.

The Bristol Bicycle and Motor Club Gazette devotes a portion of its pages to motor cycle notes. In the current issue lamps are touched upon, and the writer of the notes quite rightly calls attention to the flimsiness of the majority of lamp brackets. He also mentions that illustrations in *The Motor Cycle* seldom show the lamp bracket clip. In our last issue we illustrated the F.R.S. lamp, and the photograph shows clearly a new design of lamp bracket clip firmly riveted to the body of the lamp, and embodying the long arms and rivets which the Bristol clubman suggests should be fitted. The real cause of the breakage of lamp brackets is that they are not strong enough to take lamps which weigh more than 2 lbs., and some acetylene lamps in use with combined generators weigh considerably more. One of the best separate generator lamps we know of is the Duco, which throws its light a considerable distance ahead, yet is no heavier than other makes of lamps of the same type.

The French Motor Cycle Trials.

It is interesting to note that in the Auto Cycle Club de France Paris-Bordeaux-Paris Trial (1,600 kilometres), which will be held from April 22nd-28th, motor bicycles are confined to two classes, those with engines not exceeding 250 c.c. cylinder capacity in Class 1, and not exceeding 210 c.c. in Class 2. Tricar engines are restricted to a total cylinder capacity of 500 c.c., which equals a bore and stroke of about 86 by 86 mm. An average speed of twenty-five kilometres an hour must be adhered to, and all competitors will be penalised one mark for every half-minute's delay. The shortest day's run is 194 kilometres (120 miles), and the longest 320 kilometres (200 miles). Entries will be received up to the 1st prox., and should be addressed to the Auto Cycle Club of France, 23-25, Rue Jean Jacques-Rousseau, Paris. The entrance fee for motor bicycles is £4, and tricars £6.

Tricar for Fire Brigade.

The Beckenham District Council is inviting tenders for the supply of a motor tricycle for fire brigade purposes. The tricar must be capable of carrying two men, about 2 cwt. of hose, etc., and two patent fire extinguishers.

FUTURE EVENTS.

Mar. 21—A.C.U. Annual General Meeting of Council.
" 21-28—Cordingley's Motor Show, Agricultural Hall.
" 28—M.C.C. Opening Week-end Run to Brighton.
April 4—Lewisham A.C. Open Hill Climb for Motor Cycles
" 16-20—M.C.C. Easter Tour.
" 18-20—Brooklands Motor Races.
" ——A.C.U. Quarterly Trial.
" 19 (Easter Monday)—Lincolnshire M.C.C. Hill Climb.
May 2—M.C.C. Members' Hill-climb.
" 9—Brooklands Motor Races.
" ——A.C.U. Annual Hill Climb.
June 5-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U. 24 Hours Ride.
" ——A.C.U. Land's End to John-o'-Groat's Six Days' Reliability Trial.
July 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.

Motor Cycling in the Sahara Desert.

A French army officer, Commandant Pein, has caused somewhat of a sensation in sporting and military circles in France by announcing his intention of crossing the Sahara on a motor bicycle. For about a year he has used motor bicycles in place of horses for the carriage of mails between Berguent and Mecheria, and has often ridden the distance separating the two places (184 kilometres) in six hours. The destination of this enterprising officer is said to be In Salah.

News from New Zealand.

Mr. C. R. Russell, of Christchurch, N.Z., writes as follows: "Motor cycles are very popular here, and are becoming more so every year. In this town (on the plains) and in the more hilly parts of the country, Triumph motor cycles are very popular; the Minerva are also used a great deal. Rocs are becoming popular on account of their clutch and two-speed gear, and I have seen a Zenith Bicar. The four-cylinder F.N. motor cycles are giving great satisfaction."

Rene Thomas's Confession.

Les Sports, a French sporting daily, contains a feature entitled "Petite Confession des Grands Chauffeurs." Each well-known racing motorist is asked to give replies to a series of questions which are published underneath his portrait. No. 55 is René Thomas, and question 2 is, "To which of your victories do you attach the greatest importance?" The reply is, "The Third of a Litre Motor Cycle Race held on the 21st September, 1905, when I rode 88 kilometres (54½ miles) inside the hour on a crowded track, and the following year created the world's hour record for motor cycles not exceeding a third of a litre, covering 91.6 kilometres (56 miles 1,685 yards)." A third of a litre engine is one with cylinder measurements of about 3in. bore by 3in. stroke.

The Shepherd's Bush Track.

A well-known motor cycle racer who has closely inspected London's new track is by no means favourably impressed with it. For motor cycles he doubts whether it will be as fast as Canning Town. He takes exception to the very sharp rising of the bankings from the straight, and also the absence of any fall from the outside to the inside of the track. He opines the designers would have done better to have laid it more after the model of the Paris paths, but no doubt the question of the spectators is a more important consideration, whilst, of course, it is primarily intended for pedal cycles. We hear that the Auto Cycle Union Championships will be decided at the Stadium in August next.

The M.C.C. Team Competition.

We have already heard of five clubs that will be represented in the Motor Cycling Club's Team Competition for *The Motor Cycle* fifty guineas challenge cup. Club secretaries should bring this event (which is fixed for June 27th) to the notice of their respective committees. This year's competition is sure to be keener than ever, as the Coventry Motor Club team has only to win again to make the trophy its own property.

Opinion of Motor Cycles.

A long paragraph was published in the *Daily Express* last week in praise of motor cycles. The writer drew attention to the revival taking place in motor cycling now, partly by reason of the great improvements one finds in the 1908 machines. He considers that modern motor bicycles are remarkably efficient, their early troubles having almost disappeared, so that they are equal to the best motor cars for reliability. The cost of running was stated by the writer to be about one penny for every five miles for fuel and oil—a figure which cannot be equalled by any other kind of self-propelled vehicle. He pointed out that budding motorists could not do better, therefore, than to take up motor cycling and gain experience cheaply thereby. The enjoyment and pleasure are endless.

CLUB NEWS

Yorks County M.C.C.

During next month a petrol consumption trial has been arranged for a solid silver cup to be won outright. Further particulars can be obtained from the hon. sec., 8, Methley Drive, Chapel-Allerton.

Western District M.C. (London).

The above club will hold another whist drive at the Milford Hotel, Spring Grove, Isleworth, on Wednesday next, March 18th, at 8 p.m. Tickets, 1s. each, can be obtained from the secretary, R. R. Babbage, 16, Rigault Road, Fulham.

Brighton and District M.C.C.

One or two valuable prizes have been promised the above club for its first competition, which will be announced shortly. Riders in the district are reminded that the entry fee is 2s. 6d., and the subscription only 5s. The club starts the year with a membership of about forty and hopes to make good headway.

North-west London M.C.C.

The opening run of the year will take place on Saturday, April 4th, the destination being Tring (Rose and Crown). On Sunday there will also be a run to Tring. The meet will be at Dollis Hill Lane, at 3 p.m., on the Saturday, and at 10 a.m. on the Sunday.

The captain, Mr. A. S. Phillips, has undertaken the duties of trials hon. sec. for the London to Coventry and back competition. All communications should be addressed to him at 34, Alexandra Road, South Hampstead.

The Great Yarmouth and District M.C.C.

The A.G.M. was held at the Queen's Hotel, Great Yarmouth, preceded by a dinner. The reports of the hon. sec. and treasurer were received and adopted, and the following officers elected for 1908: President, Dr. T. W. L. Beales; vice-president, Mr. H. R. Culley; captain, Mr. C. F. Lacey; hon. sec. and treasurer, Dr. V. H. Blake, Park View, Regent Road, Great Yarmouth; hon. auditor, Mr. W. J. Tooley; committee, Dr. H. R. Mayo, Messrs. H. Collins, F. G. Galley, F. W. Capenhurst, R. H. Williams, and F. Worts; representatives to A.C.U., Dr. Mayo, Mr. Galley, and Mr. Lacey; to the M.U., Dr. Mayo and Mr. Lacey.

It was decided to select a team to represent the club in the M.C.C. team competition for *The Motor Cycle* cup, and a list of provisional fixtures was approved. It was decided that, in the absence of a six months' notice from the A.C.U. and M.U. to terminate their agreement of affiliation, the club should remain affiliated to the above bodies for the ensuing year.

Newcastle Motor Club.

The second annual dinner of the Newcastle Motor Club was held at the Crow's Nest Hotel, Barras Bridge, Newcastle, on Wednesday last, the 4th instant, when about forty members sat down to an excellent repast. In the absence of the president, the chair was taken by Councillor J. H. Cousins, of Corbridge-on-Tyne, and Mr. W. Stephen, of Gateshead, filled the vice-chair. Both these gentlemen are vice-presidents of the club. There were no speeches, but Mr. J. E. Hodgkin (the hon. secretary of the North-Eastern A.A., to which body the club was affiliated last year) was given a little grace, as he had some information to impart.

In proposing the toast of "The Newcastle Motor Club," Mr. Hodgkin said, regarding motor cyclists, it was suggested that they should become members of the N.E.A.A. and be affiliated to the Auto Cycle Union, but the terms of affiliation were not yet settled. The Motor Union had never done anything for them, but the A.C.U. had been deputed by the R.A.C. to look after their interests, and the N.E.A.A. would affiliate them to the A.C.U.

Elaborate arrangements have been made by the committee for the variable speed judging competition to be held at Belsay on April 17th in connection with the opening run.

The Hull and East Riding A.C.C.

The first annual general meeting of the above club took place on Friday last, at which it was decided to alter the title of the club from the Hull A.C.C. to the Hull and East Riding A.C.C. Several new members were elected, bringing the total membership up to seventy-four.

Twelve prizes have been promised for this year's events, and the opening run takes place on April 20th (Bank Holiday) to Bridlington, where the Scarborough M.C.C. will be met at dinner. The following Sunday, April 26th, being Military Sunday at York, the Hull club will, it is expected, have a good turn-out.

The Motor Cycling Club.

It has been found impossible to obtain suitable accommodation at Dunchurch (Warwickshire) for the Easter tour, so that this place will have to be abandoned as a centre. The new centre will be announced as soon as one has been found with sufficient hotel accommodation.

The following have been appointed to represent the club on the A.C.U. Council: Messrs. E. B. Dickson, S. H. Fry, R. H. Head, J. Van Hooydonk, F. J. Jenkins, H. G. R. Slingo, W. H. Wells, and Dr. Clifford Gibbons.

Several new members were elected at the last committee meeting.

Leeds M.C.C.

The following is a list of fixtures arranged by this club:

Apr. 17th.—Opening run to Richmond. Meet Boroughbridge at 10 a.m.
,, 25th.—The Kirk Trophy. Hill-climb, Beulah Hill, Leeds.
May 16th.—The Kelly Cup. Venue to be decided by Mr. Kelly and trials hon. sec.
June 13th.—The Langton Cup. Leeds to Edinburgh and back in twenty-four hours.
,, 28th.—The Grange Trophy. Hill-climb, Sutton Bank, Yorkshire.
July 11th.—The Invitation Trophy. Leeds, London and back in twenty-two hours.
,, 25th.—Competition for championship of the club.
Aug. 3rd and 4th.—The President's Cup, for private owners only. Two days' reliability trial in Lake District.
,, 15th—The Triumph Cup. Hill-climb, "Chevin," Otley.
Sept. 12th.—The N.S.U. Shield. Speed contest, private park.

There will also be eight minor competitions.

Mr. Horner, a member of the committee, has offered a gold badge to be presented to the champion of the club, the champion to be decided as follows: The survivors of the two long-distance runs, *i.e.*, Edinburgh and London, only are eligible. The marks each competitor loses in the above runs count against him for the championship, which will be finally run off on July 25th. The rider losing least marks will be judged the champion.

The hon. secretary, Mr. H. S. Atkinson, would be glad to hear from other clubs having open dates which do not clash with the above, for the purpose of arranging inter-club meets. Address, 72, Avenue Hill, Leeds.

On Thursday last the above club held a final whist drive at Fairburn's Rooms, there being almost one hundred present. On Friday an extraordinary general meeting was held to consider a complete alteration of rules as suggested by the committee. It was resolved during the evening to change headquarters to the Grand Central Hotel. The 1908 programme was approved.

York County Motor Cycle Club.

A Paper on Carburetters and Petrol Consumption.

AT the Grand Central Hotel, on Thursday, February 27th, a very interesting paper was read by Mr. H. H. Charge, honorary secretary of the York County Motor Cycle Club. The subject was "Petrol and the Heavier Spirits, Carburetters, Hints on Economy, Consumption Trials."

Mr. Charge explained where petrol came from, how it was produced, and the quantities of motor spirit and crude petroleum imported into Great Britain. He explained that he had found from experience that decidedly better results were obtained by using a heavier spirit, such as benzol, which he thought would become the fuel adopted by most users of motor engines in the near future. There were, of course, other heavier fuels, such as petrol and paraffin mixed, benzol and petrol, and paraffin by itself, but it had been proved that paraffin alone tended towards overheating.

Several carburetters were shown, including the Longuemare, Brown and Barlow, Jap automatic, Gillet-Lehman, and the new Triumph, all of which have been described from time to time in *The Motor Cycle*.

After describing many devices and giving numerous hints how economy may be effected, the reader of the paper referred in detail to past petrol consumption trials and consumption trial formula, and expressed surprise that more care had not been bestowed upon this interesting subject by motor cycle clubs. Mr. Charge wished to express the fact that cylinder capacity must not be eliminated from the formulæ. He quoted a formula which appeared in *The Motor Cycle* of June 12th, 1907. The formula referred to was as follows:

$$\frac{W\ D}{T\ P} = \text{figure of merit.}$$

Now as W = weight of machine and rider in lbs., D = distance in furlongs, T = time in seconds, P = petrol in ounces. Anyone who worked the example given would find a huge discrepancy. He pointed out, also, that it was not a printer's error, as the figure of merit shows, yet this formula had been passed over by a very large percentage of motor cyclists without comment. The error referred to was that 60 × 60 = 360, whereas 60 × 60 = 3,600.

On this formula a 5 h.p. Vindec, twin, cubical capacity 670 centimetres, weight of machine 186 lbs., and a 3½ h.p. two-speed Vindec, cubical capacity 492, weight of machine 196 lbs., the twin-cylinder 5 h.p. Vindec would be required to cover a greater mileage to the gallon than the single-cylinder machine, which is absurd.

By further way of comparison three single-cylinder machines were taken, viz., 3 h.p. N.S.U., 3½ h.p. Triumph, and a 5½ h.p. single-cylinder Noble, with cubical capacity respectively 331, 476, 673. The weight of each machine being equal, viz., 160 lbs. All these three machines would be expected to cover exactly the same distance to the gallon. These examples assume the rider in each case to be of equal weight. [Mr. Charge is quite correct in pointing out the error in Mr. Jas. R. Kelly's formula, but as the omission of the final 0 only changes the position of the decimal point, the results are the same as far as the formula is concerned. Mr. Kelly did not take cylinder capacity into account in his suggested formula because we presume he reckoned that machines of equal weight should be fitted with engines of equal cylinder capacity. Nearly all consumption trials where a formula is used are calculated on weight and distance propelled; cylinder capacity seldom enters into the calculation. —ED.]

The formula the lecturer suggested was as follows:

$$\frac{W + C}{P} = \text{figure of merit, W = weight of rider, C = cubical capacity in centimetres, P = petrol consumption in ounces.}$$

Mr. Charge suggested a course of twenty-five miles, tanks filled to their utmost capacity and sealed. On finishing the distance the tanks to be again filled, the amount of spirit required being equal to the amount used.

At the completion of the paper several of the members entered into a discussion on fuel. Mr. C. Potter stated that he always used petrol and paraffin mixed in equal quantities on his 6 h.p. Riley with very satisfactory results.

Mr. C. Benn said he had driven a 12 h.p. Argyll car 4,000 miles on benzol, and at completion of that distance the engine was dismantled, and only a thin red deposit was found upon the piston tops. He also used benzol on his 3 h.p. Triumph. He found it best to slightly weight the float to get the best results. He found that he got twenty-five per cent. more mileage on a gallon of benzol than he got on a gallon of petrol, which seemed to confirm the lecturer's opinion.

Mr. Shinn said that he got equally good results by using a cheap brand of benzol on his 2½ h.p. Jap. He had used benzol at 5d. per gallon, but found it sooted his engine a good deal.

Other members related their experience, and a very pleasant evening was brought to a close with a vote of thanks to Mr. Charge for his very able lecture, and to Mr. J. Whittle, the chairman.

IMPORTS AND EXPORTS OF MOTOR CYCLES.

LAST month's imports were down as compared with 1906 and 1907, the decline being due to the small number of parts imported. The value of complete machines and parts imported were:

1906.	1907.	1908.
£5,018 ...	£7,864 ...	£4,843.

Taking January and February together, the figures were—

1906.	1907.	1908.
£9,896 ...	£13,235 ...	£11,578.

The Exports of British Machines.

The exports continue to advance steadily, the February exports being valued at £4,105, compared with £3,514 in 1907 and £3,278 in 1906. The two months' export figures stand at £7,601 in 1906, £8,346, and £8,908 this year. British South Africa took £1,120 worth of the above exports. During February foreign motor cycles and parts were re-exported from this country to the value of £1,301.

In future the Lloyd Motor and Engineering Co. will fit handle-bar control to their machines without extra charge.

The United Motor Industries, Ltd., have issued a circular describing the value and use of an ampèremeter, which they will be pleased to distribute to readers who are interested.

The Rover Co., Ltd., inform us that they are in a position to supply round tubular stands or luggage carriers for motor cycles, and enquiries sent to the Meteor Works, Coventry, will have their best attention.

It has now been definitely decided that the annual championships promoted by the Auto Cycle Union shall take place this year at the new stadium at Shepherd's Bush, and the date fixed is Saturday, August 22nd, starting at 3 p.m.

The newest of the Peter Union tyres is the "basket pattern" all rubber non-skidding tyre. The basket moulding extends around almost half the tyre's section, so that, however great a weight may be put on the tyre, there will always be a non-skidding tread in contact with the road.

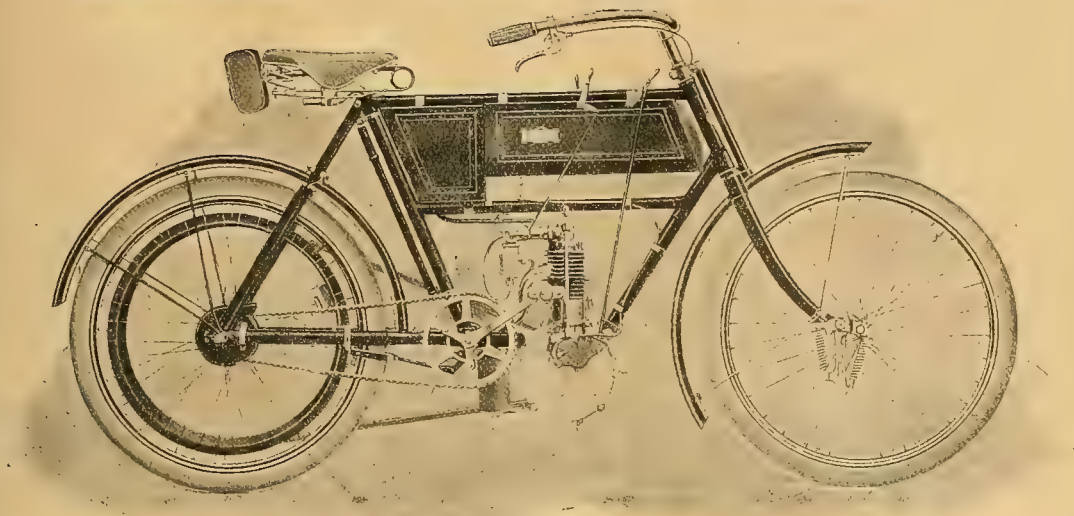
H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W., have been appointed sole London agents for the Douglas twin-cylinder motor bicycle. The engine fitted to this machine was described and illustrated in *The Motor Cycle* of the 5th of February, page 111.

We have no hesitation in saying that the finest motor cycle catalogue yet published is the one just issued by the Rex Motor Manufacturing Co., Ltd. It contains excellent photographic reproductions of the exterior and interior of the Rex Works, the interior views showing machines in different processes of manufacture. Photographs of some of the best known motor cyclists mounted on Rex machines are also included. The catalogue, of course, contains in addition illustrations of the firm's latest models, with complete specifications and prices. It is well printed in colours on art paper, and will be sent to any motor cyclist who applies to the works at Coventry for a free copy.

Ariel

1908

2½ h.p. Lightweight.



PRICE 32 GNS. **MAGNETO IGNITION EXTRA.**

WRITE FOR PARTICULARS.

Dept. 3. **ARIEL WORKS,** BOURNBROOK, BIRMINGHAM.

LONDON AGENT: WAUCHOPE'S, 9, SHOE LANE, E.C.

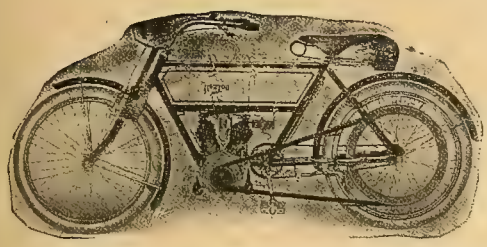
Does an air cooled engine overheat?

NOT IF IT'S A NORTON.

The Design Prohibits it.

NORTON 1908 IMPROVEMENTS are not merely talking points, but are features giving increased

EFFICIENCY, ELASTICITY, and DURABILITY.



Do you want SPEED & RELIABILITY?

Witness the Tourist Trophy Race, 1907, and the Bombay to Poona Race.

These were "Trying" Trials and the machines that scored

STANDARD NORTON.

5 h.p. Tourist Trophy Winning Model, Twin, Magneto, Spring Forks, £50 10s.
3½ h.p. Single, Magneto, and Spring Forks, £41 10s.

Both with Ball Bearing Norton Engines.

A customer writes re. his 3½ h.p.: "It is simply a glorious jigger, there is no limit to its pace, I am delighted with it." "I am especially gratified at its steadiness in mud of all grades."

The NORTON Mfg., Co. Ltd., Birmingham.

WHY NOT PLAN YOUR TOURS NOW?

The Autocar **MAP FOR MOTORISTS will be found an invaluable aid in planning an enjoyable motor bicycle or tricar tour.**

Price

8/10

carriage paid.

Size, 4 ft. 8 in. x 3 ft. 9 in. Styles 1 and 2 mounted on strong rollers.

Supplied in three styles—(1) Large hanging map, varnished, with roads marked plainly in red and showing distances between main towns; (2) unvarnished and printed in black, on material suitable for marking in roads covered or to be covered; (3) folded map, in strong case, suitable for carrying in kit or on tricar.

The price for each map is the same. When ordering please state which is required.

Obtainable from

"The Motor Cycle" Offices, 20, Tudor St., London, E.C.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(Continued from page 154.)

COMPETITION RIDING.

179. For any competition the ıachine must be tuned up to the best f your ability. Practice will enable ou to tune up your machine as per-ectly as the expert who rides for its ıakers could do it.

HILL CLIMBS.

Coming to the course with the best ıachine on the course, and in the most erfect tune, it is possible to be beaten y twenty seconds.

Be smart off the mark.

Levers must be set so that machine ill start at speed—throttle wide open, ark unretarded.

Start rather before the word than ter it. Most riders lose five or six conds on the word "Go." If you eat the starter he will call you back, ut you are unlikely to do it.

You must go straight into the ddle—no feeling for the pedal.

Don't *push* to start; having every-ing perfect, start her with one mighty ave from thighs and shoulders.

Safely arrived in the saddle, open the tra air *at once*.

Within about thirty-five yards the achine will be doing thirty-five miles r hour, and the proper place for the der's nose is adjacent to the lamp acket.

If the back be humped up high in r, it is no good having the head wn; the back should lie smoothly ng the top tube. René Thomas ined a big advantage by doing this ell.

If the engine and gear are right, you ould just have to cramp yourself up d steer till the cheering begins up ft; but if the pulley is a shade too g, the spark and air may have to me back a notch or so apiece. This where you may make big mistakes, d it is here that preliminary practice the hill will score.

If the hill is as long as a mile, and u've really been humming, a pump lubricant half-way up would be ateful and comforting.

Arriving at the top, don't grumble out belt slip, misfires, a cart half-ay up, or other undeserved handicaps. e timekeeper has got your figure, d talking only destroys your reputa-on.

NOTE.—Do not tune your machine at home, ride 100 miles to the hill d trust to everything remaining just . The hill should be reached over-ght, and the machine tuned up in e morning. If this is impossible, e condition of valves, carburetter, d ignition should be verified over ain.

NON-STOP TRIALS.

Five prolific causes of failure are—

1. Loose nuts.
2. Dirt.
3. Punctures.
4. Belt troubles.
5. Ignition troubles.

A new, loose, or dirty belt is a sure urce of trouble.

Light tyres, used without nail-tchers, are pretty certain to out you.

So is a cheap or untried plug. Put a spanner on locking nut of plug at the start.

Don't over-lubricate, for the sake of the sparking plug.

Don't drive jerkily for the belt's sake. Dropping the valve with ignition fully advanced, or suddenly accelerating on stiff hills, will set up slipping in a well adjusted belt sometimes. Drive evenly at a moderate speed—pace tries the machine seriously.

LONG TRIALS.

More men are outed in a six days' trial by want of coolness than by the unreliability of their machines. Never allow yourself to get flurried, or to fumble at the machine vaguely.

Don't overload the machine with spares. Two valves, complete, four good plugs, three belt fasteners, three butt-ended tubes, tin of valve grinding medium, spare contact breaker, full set minor ignition spares, are all that need be added to the regulation kit.

Drive at a moderate speed. High speed throws double the necessary burden on the machine.

Few troubles are really hopeless. Cultivate an ingenious eye for make-shifts in emergencies.

Start with a lower gear than is ordinarily necessary, so that if machine loses power you will not be fatigued by struggles on hills.

CROSS ROADS.

180. Unless a motor cyclist has a view extending at least forty yards down each road at right angles, he should invariably be able to stop before a point of intersection is reached. Thousands of drivers take all cross-roads too fast, so that they could not stop in an emergency.

DESCENDING HILLS ON A TRICAR.

181.—If the slope be imperceptible, run the engine on top gear well throttled down, exactly as you would on a motor bicycle.

If the slope be just steep enough to coast down, declutch and switch off engine at top, leaving gear lever in top notch, but on no account in neutral. Hold the clutch out firmly with the foot; nearing the bottom switch on again, set the levers as for a handle start, except that air need not be quite shut off, and very gently let the clutch in. If the clutch is let in suddenly, the back tyre will be scraped, and the tricar may swerve. A valve lifter is a great convenience on a tricar, and saves the clutch unnecessary work.

If slope be dangerously steep or twisty remember a runaway tricar is an almost impossible vehicle to dismount from. Therefore, approach the brow at a crawl, and get in first gear just before commencing descent. Take the clutch out, and then, even if the brakes fail altogether, the machine may be safely taken down, and can probably be stopped on any gradient by simply letting the clutch in again.

Care must be taken to slow engine and machine very considerably before changing to lowest gear.

DOGS.

182. Swinging the arm up as if to hurl an imaginary stone is a *certain* safeguard. Do it when close to the dog, and shoot past before he discovers there is no stone.

DRIVING A MOTOR BICYCLE.

183. This subject divides itself into two parts, the control of the machine, and the control of the engine.

CONTROL OF THE MACHINE.

1. Adjust pace so as to be able to stop dead before farthest point of vision is reached.

2. Always be prepared for the unexpected, *e.g.*—

A child's dart out of an alley.

A cyclist's wobble.

A block in the traffic, round the corner.

Passengers dismounting from trams.

Traffic entering at speed from by-roads.

Vehicles in front stopping suddenly.

Vehicles behind not stopping when you stop.

A tyre burst at speed.

A failure of the brakes when most required.

Swerves of passing or oncoming cars, especially if handled by ladies, or when roads are greasy.

Attempted suicide by dogs, cows, sheep, pigs, old ladies and children.

Cap throwing by small boys.

The best precaution is to have one hand permanently on the switch or valve lifter, and the other near the brakes. Don't trouble about the scenery when you are riding really fast.

3. Never drive with the silencer cut-out open, except on lonely moors.

4. Use the hooter as little as possible; when used, give two or three firm, imperious toots. Behind carts in narrow lanes where there is no room to pass shout "ay-y-y-y!" to awake the driver.

5. When pavements are greasy give oncoming traffic all possible room. A sideslip on the open road is nothing. A tumble near hoofs or wheels is dangerous.

6. Never overtake and pass a driver who is not obviously aware of your presence unless you have three times as much room as you need. This is specially applicable to motor cars which you overtake.

7. Observe the rule of the road strictly, even when you appear to be alone on the earth, and in the event of an accident give all the assistance possible.

(To be continued.)

The partnership hitherto existing between Messrs. Rey and Pratt has been dissolved, and the English agency for Griffon motor cycles is now held solely by the Heath Street Motor Works (near to Hampstead Tube Station), of which Mr. A. P. Rey is sole proprietor. All models of the Griffon motor cycles can be seen and tried at that address.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and addre

Variable Gears.

[3161.]—In reply to letter No. 3137, by H. Bennett, referring to my clutch, I will forward you drawings as soon as the device is completed and protected. R. ENGLISH.

Silence.

[3162.]—In my letter describing a silencer in your issue of February 26th. by an unfortunate mistake I omitted to point out that the material used for the outer shell and the end plates is brass. This is quite essential, as annealing of these is the important part in the making. Brass tube four inches diameter can be obtained from Messrs. Smith, Clerkenwell Square, E.C. G. D. MONICE.

The Balancing of Petrol Engines.

[3163.]—It is a very difficult matter indeed to balance a reciprocating engine running, as petrol engines do, at varying speeds. The inertia of the different parts vary from each other at different speeds owing to the separate parts being of unequal weight, thereby causing unequal centrifugal forces. The Triumph engine flywheel weights balance the piston, piston rod, gudgeon pin, and piston friction in the cylinder. As this friction varies directly as the speed and temperature, it is plain to conceive that the combustion engine is difficult to balance. T. MIDDLEFELL.

Belts v. Chains.

[3164.]—I have read with interest the correspondence on "Belts *v.* Chains" and the various articles published by you thereon. Is it not significant that nearly all the advocates of the belt (including Mr. B. H. Davies), after finding innumerable faults and dangers in the chain, all agree that it is the best transmission for sidecar work, *i.e.*, where the very highest efficiency is needed? A. BB. X.

[3165.]—I have read with much interest the letter of "PH 11," especially with regard to the chain drive. I purchased when quite a novice a 3 h.p. Humber. I rode that machine for two years and never had any trouble with the chains, nor did I suffer from a jammed engine. The only attention I gave the chains was a cleaning with paraffin, and then a good oiling. Now, I am afraid I have remained somewhat of a novice; that is, I cannot claim to be able to perform the mechanical feats some riders think nothing of, so I am quite at a loss to understand the almost violent attacks made on the chain as a means of transmission. Further, does the performance of a certain chain-driven machine in the six days' trials for three consecutive years go for nothing? L 494.

Tricar Experiences.

[3166.]—You may perhaps remember the Rexette which I wrote to you about, saying it would not go up hills of 1 in 10 with a passenger, and suggesting smallness of the inlet pipe as the cause. You were quite right about there being friction somewhere. I jacked up the rear wheel, and found that I could barely turn it round with the chain on. This was due to the chain being far too tight. The tightness of the chain was necessary in order to keep it on the sprockets. However well you trued it up, if the least slack it came off. Having never had anything to do with chains before, I did not see that this in turn was due to the chain ha stretched a great deal, and it was riding on top of the t

I first of all got a new chain, and this I found was whole link shorter than the old one, in a space of tw links, *i.e.*, twenty-one links of the new one equalled tw links of the old one. I fitted this, and found it mad the difference in the world; but I was not satisfied, also fitted a copper inlet pipe 1in. diameter in place of old ¾in. pipe, and found that it started up much easier, that it climbed hills a trifle better than even after the adjustment. It will now take two up a 1 in 9 grad weight 23 stones. As the low gear is a comparatively one (far too high, I think), this is fairly good.

I also cut out a piece of the collar holding down the valve (automatic) seating, as I considered it throttled inlet considerably. The result has justified this proce It will restart (after a ten minutes wait) without flo the carburetter—a great matter for a doctor. Many th for your trouble. (DR.) H. GASKEI

Outside Flywheels.

[3167.]—In your issue of March 4th we notice a [No. 3148] *re* "Outside Flywheels," signed M. Marshall

We gave up using the old parallel key and non-stan taper some time back for two reasons. Firstly, we ex enced considerable trouble with the method, and, seco in our opinion it did not make a sound mechanical job.

With the Morse Taper and Woodruff key you have thing which is standard all the world over, and not liab mechanical trouble.

We hope to be able to give full particulars of our new Mark III. engine, to which Mr. Marshall refers, in journal shortly. THE FAIRY MOTOR C

Best Route to Switzerland.

[3168.]—I notice in *The Motor Cycle* of February under the heading "Questions and Replies," you advi correspondent—"W.R.W."—that you think a 4 to 1 gea a 3½ h.p. machine suitable for him to reach Zurich, and a wards for use in Switzerland, though a good plan to f adjustable pulley.

May I, from my own experience of touring in Switzerl make one or two suggestions.

As to route, your correspondent could reach Zurich Havre (as you suggest), Rouen, Paris, Châlons, Nancy, Bâle, or a nearer route from Paris through Troyes and Be to Bâle, then, if not tied for time, and scenery is an ob up the Rhine Valley to Schaffhausen, and through Winter to Zurich. If the roads are open while there, I would a him to return—if time permits—*viâ* Lucerne, Altdorf, A matt, the Rhone Valley to Geneva, then Dijon and Pari

Now, with regard to gear, no doubt a 4 to 1 may be ser able to Bâle, or possibly the way I suggest to Zurich; if "W.R.W." intends riding south of the latter pla should decidedly advise a lower gear. On the stiff as the corners could hardly be taken at a greater pace twelve miles an hour, and besides, a low speed, I believ only allowed on some roads. Therefore I would sugge gear nearer 5 to 1. Of course, the weight carried mus taken into account.

Trusting this may be of some use, as I pity the man wi high gear in Switzerland.

Variable Gears on Lightweights.

69.]—The rapid reduction of weight in relation to r that has of late been effected has added multitudes of s who had hitherto held aloof, but the great majority of d-be motor cyclists are undoubtedly still excluded from pastime by the difficulties and dangers connected with ting and starting the engine.

ith an up-grade road and a slippery surface many riders difficulty even with an ordinary pedal bicycle, but with eight of the machine trebled and the stubborn resistance ne or more pistons to overcome before the wheels will , followed occasionally by frantic and breathless efforts mounting to induce the engine to continue pulling, the ect loses all its charms to all but youthful or strong s.

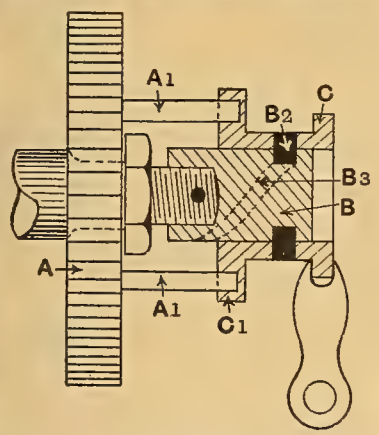
is appears to be the only obstacle to a boom in feather- t machines, and the first firm that overcomes it by a ngine and two-speed gear without appreciably increasing eight will, I imagine, before many months be working nd night to clear off accumulating orders.

any of your engineering readers give the minimum t of a ½ h.p. steam engine with flash boiler (similar to erpollet type) worked at, say, 200 lbs. pressure? Also ½ h.p. engine and boiler suited in either case for driving or bicycle? Also the consumption of water per hour?

MOTO.

Magneto Ignition.

70.]—I note in the article on "Magneto Ignition" in sue of February 19th that the writer makes a remark effect that some is required in to be able to the ignition point magnetos are The accompany- ketch if carried will, I think, about the de- result.



usual gear A is free on its and a nut B is d hard on to d of the spindle, to keep the in position. The er C is driven ojections A1 on gear wheel A h the medium portions C1 in- with C. The member C is longitudinally displacable tension of nut B, and by means of pegs B2 sliding in d grooves B3 may alter its position relatively to B e armature-shaft, thereby advancing or retarding the n point to any required degree.

order to ensure a sound job, a pin passes through nut l the armature-shaft, while the projections A1 are a working fit in holes in C1. A suitable lever arrange- is employed to actuate the slidable collar C, the exact ition depending on the machine to which it is fitted. levice has the advantage that it may be fitted to any g machine.

WM. A. DAVIS.

Exchange Transactions.

71.]—Noticing a certain amount of correspondence in paper anent the bad business methods, to use the offensive term, employed by some of the dealers in l-hand motor cycles, I think perhaps my experience in lar transaction may be of interest, if not of actual value, ne of your readers.

e little time since I sent an old machine to Messrs. nope's, asking them what they were prepared to allow in part payment for a second-hand machine of later and in reply they stated £6 could be allowed in part nt for a second-hand machine, and £11 10s. in part nge for a new machine of the previous year's pattern g, new, £32. I desired a spring frame Bat, so accepted fer of £6, and was prepared to wait until the machine ted turned up, but in the meantime kept my eyes open good machine of any other make which might suit. Messrs. Wauchope's from time to time wrote giving specifications of machines they thought would suit, and advising what they thought would be fairly certain to give satisfaction in this district (South Wales). Upon one occasion I sent a cheque to them for the purchase of a 3½ h.p. Bat, but the machine had just previously been sold, and my cheque was returned. I have not been suited yet, but this has not been through lack of courtesy and honest endeavour to please on the part of the persons with whom I have been dealing.

I think perhaps there are some who in purchasing a machine expect to receive a new mount at a second-hand price, and are greatly astonished that a dealer should wish to make a profit, probably thinking he should carry on his business as a philanthropic institution; but, of course, there are dealers who take an unfair advantage of the beginner. May I suggest that all persons, after dealing with a dealer in second-hand motor cycles, should write to the editor a short report of his treatment, such statement being filed and used for the benefit of beginners who write to the editor seeking his assistance. If this suggestion is acted upon, I should advise that every beginner write to this paper giving a list of the firms who he thinks will suit him, and requesting the editor's advice as to the one with whom he should do business.

The harm done to motor cycling by the unscrupulous dealer cannot be taken too seriously; there is also a great deal of annoyance caused by the firms who do not take the trouble to suit their customers. Where is the man, given the machine for which he has paid a reasonable price (and of which he knows very little), which turns out to be of bad make, in wretched condition, and requiring a great deal more tuning up than the owner is able to give it, who would not be considerably discouraged and tempted to give up the pastime altogether? Undoubtedly a great number of persons have been lost to the motor cycling ranks after their first attempt on this account. The praise or condemnation of a person who has tried motor cycling has more effect than the words of one who has not.

SOLICITOR.

The Future of Motor Cycling.

[3172.]—I have just finished reading the paper on "The Future of Motor Cycling," and notice that mention is made therein of the Mabon clutch.

As I have been a most satisfied user of this excellent accessory, I think it only fair to the makers thereof to give expression of my satisfaction.

The clutch has been fitted to my machine—a 3½ h.p. Vindec—for about a year and has seen a large amount of heavy traffic work, and for such riding its value is inestimable. I simply would not on any account go back to the fixed pulley arrangement. I have discarded the pedals as being unnecessary now, and seldom feel the need of them.

Although a starting handle is provided with the clutch, I do not use it. I merely start the engine by running alongside the machine, take the clutch out, stop the machine, and sit across the stationary machine in safety and comfort, the engine being governed by the exhaust valve lifter. I have nothing but praise for the clutch.

T. H. D., B.SC.

[3173.]—Mr. H. G. Bell's lecture on the above topic, before the members of the Auto Cycle Union, on the 28th ult., brought out a somewhat lengthy discussion of a more or less mutual admiration order.

The importance of the subject merits discussion on much broader lines, and I trust you will open your columns for a further ventilation of your readers' opinions.

Without wishing to discount the value of the trade member's experience, the writer values the practical rider's views as tending towards a more rapid and healthy growth of the sport, as well as an appreciation of the vast utility which the motor bicycle opens up.

Has not a clerical gentleman advanced the state of the two-speed gear in spite of trade opposition at first? Would motor bicycles for the fair sex have been attempted at all had it not been for an enthusiast in the Midlands who, by practical example and a facile pen, "bossed the job" of designing something approaching what is wanted but as yet not attained? It is a thousand pities that Englishmen with the most superb system of roads at their doors do not wake up and supply a lightweight, medium powered, variable speed, easily started, comfortable and clean motor bicycle, which would tempt the thousands of cyclists to swell our ranks and help to influence beneficial legislation to further aid our cause.

Mr. Bell showed us French, Swiss, and Belgian examples of light motor bicycles, the clean splendid workmanship of which showed itself in even the most minute details. Are there no English specimens that can match the Continental machines, and why not? The writer has owned and ridden five motor cycles ranging in weight from 79 to 200 lbs., with three h.p.'s from 1½ to 4, and he proposes now to return to the first love—the lightweight—for obvious reasons.

One speaker wandered away to tricars, and might possibly have ended up with Quads, forgetting that his firm's design of a motor bicycle is one of the most original and practical machines made in England—at least that is the writer's opinion, who might possibly be riding one had not its weight and price been a drawback to his enthusiasm.

A machine on the lines of the Phœnix Cob, built up of light gauge tubing, with extra braces similar to those used in the Dursley-Pedersen push bicycle frame, a vibrationless engine of the double-opposed cylinder variety, with chain drive enclosed in an oil case cover, might sell, if the price was not over £32, and well made.

The first time the writer saw a Motosacoche it was being driven along the footpath leading into Milan, Italy. Rain descending in torrents caused the wide deep gutters to fill to quite a large stream, while trees planted in the middle of the pathway obstructed the course. In spite of all this the rider's speed was, to say the least, rather fast, and, to my mind, dangerous under the circumstances, which speaks well for the easy control of this machine. Good business management and judicious advertising, together with splendid workmanship, tell in the end. Personally, I do not care to own one of these machines, because the engine is too high up in the frame, and I should prefer the ladies' model, where the engine is of more generous dimensions, but I believe in a two-cycle or else a double-opposed engine type as being free from vibrations, which tend to weaken a light frame.

Motor cycles that permit the rider to place both feet squarely on the ground are safest in grease, and disastrous sideslips may be avoided when one is able to check the first symptoms by a vigorous kick on the ground. The Fairy and Douglas are too high up, and the Fairy has a countershaft running at nearly engine speed. If the light Fairy were built more on the lines of the higher powered machine of the same make it might possibly sell better. The Americans can build a twin-cylinder 5 h.p. motor cycle only weighing 135 lbs. (see page 230, January Number *Cycle and Automobile Trade Journal*), then it is time that we had a 2½ h.p. weighing less than 90 lbs. on the fine roads in this country.

Cannot levers be made to take the place of cranks for the pedals, so that footboards may be used without interfering one with the other. The gear ratio may be changed by attaching the chain at different parts of the lever, and the length of stroke adjusted to suit the length of reach and height of frame. This letter is already too long, otherwise the writer might illustrate his meaning with a few sketches showing the possibilities of his ideal mount.

INTERNATIONAL.

First Motor Cycle Race at Brooklands.

[3174.]—I was greatly surprised to see in the last issue of *The Motor Cycle* the prominence given, not only in the editorial columns, but in the advertisement of one of our most esteemed competitors, to what was evidently intended to be a friendly match between two Oxford men. And, under the circumstances I feel that it is only fair to riders of Vindec Special motor cycles to explain a few facts in connection with this event.

In the first place, the Vindec Special ridden by one of the competitors was purchased by him in December, 1906, and has probably been ridden many thousands of miles, not only by the owner, but by various friends of his in Oxford. The machine when sold (and we understand it was ridden at Brooklands in the same condition) was fully equipped as a roadster according to the A.C.U. definition of a touring machine, and was what the manufacturers designate as their Tourist Trophy model. According to *The Motor Cycle*, the Triumph machine was stripped of mudguards, but *The Motor Cycle* does not mention the fact that it had auxiliary ports in the cylinder, which was a fact. It, therefore, became without question a track racing machine, and the time made has been equalled on Canning Town track many times by much lower powered machines; therefore, it was nothing marvellous.

The rider of the Vindec, unfortunately, drilled some extra air vents in his induction pipe just previous to the race, and some of the borings got lodged under one of the exhau valves, causing one cylinder to stop firing. It is, therefo nothing to the discredit of the machine that he was beaten.

The manufacturers of the Vindec Special have never cater for track racing, and confine their efforts entirely to ful equipped touring machines. If, however, the Triumph C believe that their machine is faster than the Tourist Trop Vindec Special, I am quite willing to arrange a friend match race at Brooklands, I to ride the 75 × 76 Twin Tour Trophy model Vindec against an 84 × 86 single-cylind Triumph driven by a member of their staff, the conditio being that no auxiliary ports are to be drilled in either cyli ders, and that each machine will be so equipped as to comp fully with the Tourist Trophy conditions of 1907, the mat to consist of flying start races over a measured mile, the b two out of three to be the winner and the loser to pay Broo lands track expenses.

W. H. WELLS

Courtesy at the Shows.

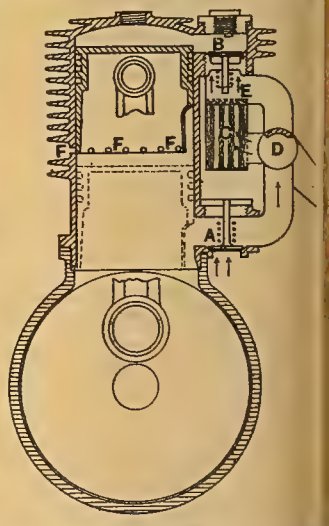
[3175.] — In reference to the letter signed "Cr Quartette," may I be allowed to state that within my o experience courtesy is not yet altogether dead in Engl firms. I refer to the Lloyd Co., Birmingham. Last Decem they allowed me a trial run on their 3½ h.p. machine. T weather was bad and the roads in a terrible state. Howev they made no conditions at all as to the state in which machine might be returned. I was also shown over th works, and had every detail fully explained.

I am in no way connected with the trade. However, I h that the gentlemen in question, although they may "cross," have not been "caught yet" by the foreign tra

C. CALDICOTT

Two-stroke Engines.

[3176.]—Seeing a design for a two-stroke engine in a rec number, it occurred to me that one of my own might be interest, as I think it could be more easily fitted to a motor cycle frame than the one in question. On the upstroke of the piston air is drawn in through valve A.



The down stroke compresses this air and drives it through the wick carburetter C to valve B, which prevents the mixture entering the cylinder, until the pressure of burnt gas has fallen considerably, thus lessening the risk of preignition. The mixture is adjusted by the three-way tap D, and the exhaust gases escape through holes F. The crankcase could be designed with a very small capacity, so that a fairly high pressure of air could obtained below the piston. I suggest that throttling co be obtained by opening a small tap in the air pipe below some of the air would be expelled through this, and, co quently, less mixture would reach the cylinder. An ordi float chamber—not shown—would maintain a constant l in chamber C, and a very small hole would connect then that the level would not be appreciably altered by the m ments of the piston.

E. SHIRLEY JONES

EXPERIENCES WANTED.

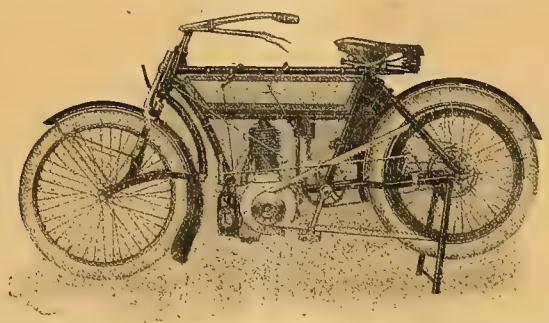
"C.C.P.L." (Melksham) would like users' experiences of two-speed gear manufactured by T. Slaughter, of Weston-su Mare. The gear was illustrated and described in *The M Cycle* of August 7th, 1907.

"Albany" would value riders' experiences of the Triumph used with a sidecar attachment. What is maximum gradient machine will take without two ge passengers about 20 stones? Also opinions of users of new Montgomery sidecar. Does the non-skid attachn really prevent side-slip?

VINDEC · SPECIAL

THE · MOTOR · CYCLE · OF · MERIT.

S.B.T. Co LTD



Model H, single cylinder, 3½ h.p., with "Vindec" Two-speed Gear, makes an ideal combination for the discriminating buyer who wants solid comfort combined with absolute reliability. It will take you anywhere—can be started without the least difficulty in the middle of a steep hill—and is a worthy companion to the twin-cylinder "Vindec," which is acknowledged to be one of the best motor cycles in existence.

Our profusely illustrated "Book of the Vindec Special" is interesting reading—sent free upon receipt of request.

SOUTH BRITISH TRADING Co LTD
13 & 15 WILSON ST, FINSBURY. LONDON. E.C.

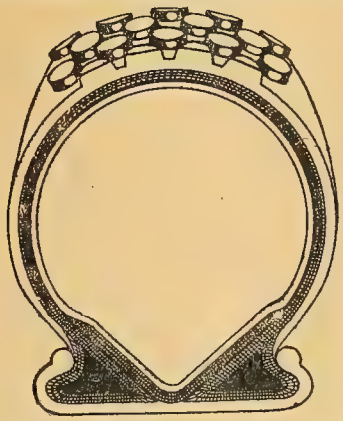
Motor Cyclists

THERE IS THE TYRE YOU WANT ☛

THE . . .

"GOODRICH"

ALL-RUBBER NON-SKID TYRE.



PRICE: Tyre Complete (26 x 2¼), 47/6; cover only, 40/-. Can also be fitted to your existing tyre, price 21/-

Gives complete Immunity from Skidding without loss of Resiliency or Speed.

The Success of 1907 in Motor Car Tyres now applied for the first time to Motor Cycles.

Will they wear? They will!

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MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given, c/o *The Motor Cycle*, 20, Tudor St., E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

HALIFAX Motor Exchange. — As the largest dealers in Rex machines, we have a few 1907 shop-soiled machines at clearance prices. Great bargains. Exchanges in all 1908 Rex and N.S.U. models.

HALIFAX. — 1907 3½ h.p. Rex, 26 by 2½ Continentals, spring forks, soiled; 19 guineas, November price £26 5s.

HALIFAX. — 1907 35 guinea twin Rex, spring forks, soiled; £23; you save £13 15s.; we gain your confidence.

HALIFAX.—1907 magneto twin Rex, unridden, November price, £42, our price £28 10s.; another £13 10s. saved.

HALIFAX.—Shop-soiled 1907 black and gold Rex de Luxe, twin tyre, magneto, Roc clutch; 1908 price £55 13s., our price £35; you save £20 13s.; we cannot keep this up indefinitely, and only a Rex agent can do it.

HALIFAX. — 1908 Rex de Luxe, Roc clutch, two-speed gear, magneto; 55 guineas; liberal exchange.

HALIFAX. — 1908 Rex featherweight, magneto, magnificent hill-climber, recommended; 25 guineas.

HALIFAX.—1908 3½ h.p. N.S.U., magneto, just delivered; £40; allow £25 for last year's model.

HALIFAX.—1908 5½ h.p. twin N.S.U., magneto; £52; allow £25 for 1907 single magneto, in good condition.

HALIFAX Motor Exchange.—Extended payments, exchanges; high-class machines purchased for spot cash. — 16, Westgate, Halifax. Telephone, 766.

The FIRST TOUR of the SEASON!

Do you remember the splendid weather and grand roads of last Easter?

DO NOT BE UNPREPARED.

The PREMIER MOTOR AGENCY will take your old machine off your hands (allowing best possible price). This will save you all the annoyance and delay of selling it privately. They will advise you as to selection of a new machine suited to your individual requirements.

The following are good to select from:

TRIUMPH.
N.S.U.
VINDEC SPECIAL.
Rex.
ROC.
BROWN.
F.N., 4-cyl. and Lightweight.
MOTOSACOCHE.

They can be seen running here, or we will furnish all details.

But do not be too late to get Delivery.

SECOND-HAND MACHINES are being SNAPPED UP. Write for our full list of these; all tuned up and sold under signed Certificate of Fitness.

	£	s.
Triumph, magneto, 3½ h.p., 1907	35	0
Triumph, magneto, 3 h.p., 1906	25	0
Quadrant, magneto, 3½ h.p., 1907, soiled	33	0
Triumph, 1906, Replated and Enamelled	30	0
Brown, 3½ h.p., 1907	28	0
Vindec Special, 5 h.p., **Twin**, 1907	35	0
F.N. Lightweight, 1¾ h.p., 1907	25	0
Minerva, 4 h.p., **Twin**, magneto	23	0
N.S.U. Twin, magneto, 4 h.p., 1907	30	0
Rex de Luxe, 5½ h.p., **Twin**	26	10
5 h.p. **Twin Rex**	17	0
N.S.U., magneto, free engine	21	0
The following are in good running order:		
3 h.p. **Buchet**	7	0
3 h.p. **Fafnir**	8	0
3 h.p. **Quadrant**	8	0
2¾ h.p. **Excelsior**	9	0
3½ h.p. **Rex**	11	10
4 h.p. **Excelsior** water-cooled **Tricar**	18	0
7 h.p. **Phœnix Quadcar**, water-cooled	35	0

A few new covers 26 x 2¼in. at 12/6 each.

TWO-SPEED GEARS with Roc clutch for high-power Motor Cycles. Give particulars of your machine, and we will quote you per return. **Immediate Delivery.**

Our Booklet "On the Choice of a Motor Cycle," and other interesting matter, sent post free.

PREMIER MOTOR AGENCY,
Aston Road, BIRMINGHAM.
Telephone: 4310. Telegrams: "Primus," B'ham.
The World's Motor Cycle Emporium.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Holds the finest and largest stock of second-hand cycles in the world. 300 to select from.

HALIFAX.—Fine twin Rex, Greenwood's Leeds-London record holder, registered, guaranteed; £22 10s.

HALIFAX.—1907 5½ h.p. twin N.S.U., spring forks, 2½ tyres, regular Beau Brunell, lovely machine; £27 10s.

HALIFAX.—5 h.p. twin Antoine, 1907 machine, spring forks, without fear or favour; £25.

HALIFAX.—6 h.p. twin Antoine, 1907 gine, spray, 26 wheels, nearly new; £14 10s.; splendid climber.

HALIFAX.—3½ h.p. Minerva, spray, girder forks, 26 by 2¼ Clincher A Won, begging at £16 10s.

HALIFAX.—4 h.p. 1907 Jap, 85 by 85, Chater-Lea, 24 by 2¼ tyres, almost equal to new; £23; torpedo tank.

HALIFAX.—3½ h.p. Phelon and Moore, magneto, spring forks, low frame, two-speed gear, climbs anything; £34.

HALIFAX.—3½ h.p. 1907 Rex, magneto, Crypto two-speed gear and Montgomery flexible sidecar; complete, £28 15s.; without sidecar, £24.

HALIFAX.—3½ h.p. light low Rex, spring forks, 26in. wheels, Longuemare; £12 17s. 6d.; snap this.

HALIFAX.—6 h.p. twin Rex, 26 by 2½ Clincher A Won, spring forks; £22; £17 allowed for powerful 1907 machine.

HALIFAX. — 1906 3½ h.p. Rex, specially good condition, 26 by 2¼ Clinchers; £16 5s.

HALIFAX. — 5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £27 10s.; nearly new.

HALIFAX.—2 h.p. Humber, spray, trembler, chain drive, splendid climber; cheap, £9 10s.

HALIFAX. — 1907 twin Minerva, spray, non-skid to rear, long low mount; £24 10s.

HALIFAX. — 3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15 15s.

HALIFAX.—3½ h.p. Simms, vertical engine, magneto ignition, easy starter, reliable; £17 10s.

HALIFAX. — 1907 twin Rex, almost equal new, no complicated speed gears required; £22; buy now, to-morrow may be too late; allow £16 for 3½ h.p. Rex.

HALIFAX. — 4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £18 10s., perfect order.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, and sidecar; £27 10s.

HALIFAX. — 5 h.p. Rex, Lenguemare, trembler coil, Clincher tyres, Fishback belt; no offers; £16 15s.

HALIFAX.—1907 Rex de Luxe, magneto, twin tyre, Roc clutch, spring forks; £27 10s.; exchange wanted.

HALIFAX. — 1907 N.S.U. Lightweight, magneto, almost as new, stand, splendid climber; £22 10s.

HALIFAX.—Genuine twin Rex, guaranteed, spring forks, low built, goes like a flash; £16 given for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex in part payment.

HALIFAX.—3½ h.p. Minerva, 26 wheels, can be thoroughly recommended: £16, a bargain.

HALIFAX Motor Exchange. — Cash, exchange, or extended payments. See Tricar list. Telephone, 766. High-class machines purchased for prompt cash. — 16, Westgate, Halifax.

MOTOR BICYCLES FOR SALE.

MAUDE'S List of Second-hand Motor Cycles at present on hand.

MAUDE'S. — 3 h.p. Bradbury, 26in. wheels, new tyres to rear, beautiful puller; £10.

MAUDE'S.—2¾ h.p. Vindec Special, like new, magneto; £17.

MAUDE'S.—6 h.p. Rex de Luxe, magneto, twin tyres, Roc free engine, like new; £27.

MAUDE'S.—5 h.p. Rex, spring forks, tremblers, 1907 model, like new, including tyres; £22.

MAUDE'S. — Twin Rex, 2¼in. tyres, special machine, a beauty; £22.

MAUDE'S.—6 h.p. Rex, spring forks, beautiful condition; £19, our price.

MAUDE'S.—Clarendon, 3f h.p., M.O.V., spray, good tyres; £10.

MAUDE'S.—2¾ h.p. De Dion, spray, long handle-bars, Clinchers, foot brake; £10.

MAUDE'S. — Bradbury, 2 h.p., vertical, very good tyres; £8.

MAUDE'S.—2 h.p. Minerva, spring forks, spray carburetter, very good tyres; £8.

MAUDE'S.—2½ h.p. Lauder, low built, 26in. wheels, new tyres; £10.

MAUDE'S.—Beautiful 1905 Rex, in perfect order and condition; £12.

MAUDE'S. — Twin Minerva, 2½ tyres, splendid mount; £25.

MAUDE'S. — Ideal lightweights. Machines we can recommend as lightweights; 2 h.p. Minerva, £8; Ariel, 2½ h.p., £8; Mitchell, 2¼ h.p., £6.

MAUDE'S.—3½ h.p. Excelsior, M.M.C. engine, perfect, tyres practically new; £10.

MAUDE'S. — Minerva, 2 h.p., spring forks, £8; M.M.C., vertical, spray, 26in. wheels, trembler, £10.

MAUDE'S.—3 h.p. Noble, vertical, spray, very good tyres; £10.

MAUDE'S.—3 h.p. Fafnir, 26in. wheels, low built, long handle-bars, spray; £12.

MAUDE'S.—Humber, 2¾ h.p., a beauty, £9; 2¾ h.p. Kerry, spray, low built, B100 saddle, £9.

MAUDE'S.—Clarendon, 1906 model, 26in. wheels, ball bearing engine, enamelled green, absolutely like new; £15.

MAUDE'S.—3½ h.p. Centaur, vertical, free engine, 26in. wheels, B100 saddle; £16.

MAUDE'S.—Minerva, 2½ h.p., spray, very good tyres; a machine we can highly recommend; £12.

MAUDE'S. — 1906 Rex, footbrake, footboards fitted, an exceptional climber; £15.

MAUDE'S. — Twin Werner, 3½ h.p., a splendid climber, and very reliable; £18.

MAUDE'S.—Jap, spray carburetter, as new; £9.

MAUDE'S.—3½ h.p. M.M.C., vertical engine, 26in. wheels, spray carburetter, good tyres, powerful; £12.

MAUDE'S.—Rex, 3½ h.p., 26in. wheels, 1905 model, perfect; we guarantee this machine to be as new in every way; £15.

MAUDE'S.—Rex, low built, 26in. wheels, spray, trembler, good tyres, and a very fine puller; £12.

MAUDE'S. — 2 h.p. Quadrant-Minerva, spray, V belt, a very good lightweight; £8.

MAUDE'S. — Quadrant, new cylinder fitted, just overhauled, spray; a pity to miss this at £10.

MAUDE'S.—Lloyds, 2¾ h.p., B. and B. carburetter, £12; Rex, 3½ h.p., trembler, good tyres, Phœnix two-speed gear, fine puller, £15.

MAUDE'S.—Brand new 1908 Twin 7-8 h.p. Minerva, delivery yet to be effected from makers, guaranteed perfect; listed at £45, accept £36 spot cash; no offers.

MAUDE'S Motor Mart, Powell Street (behind Victoria Hall), Halifax, guarantee all the above to be in perfect running order, and ready for the road before delivery.

Minervas
Minervas
Minervas

By specialising upon these machines we are able to allow you more for your old machine in part payment. Why therefore not avail yourself of this when considering an exchange for your new motor cycle.

We have the best market for second-hand motor cycles and therefore we can again allow you more for your present machine.

THEREFORE it will appear to you that there is no harm in writing for terms for exchange. THIS is exactly what we wish you to do, and remember there is no fear of an everlasting curse falling upon you by so doing.

Moto Rêves
Moto Rêves
Moto Rêves

We also specialise upon these as the finest lightweight upon the market, also the cheapest, and without a doubt the most reliable.

We are aware of the fact that this year is to be one of lightweights, and the demand is ever increasing, so we have catered for this class of traffic.

Catalogues and Definite Quotations per return of post.

We can also quote you for—

Vindec Specials,
Phelon Moores,
Motosacoche,
Phanomens,
Triumphs,
Phoenix,
Zeniths,
Ariels,
L.M.C.'s,
Rocs.

WRITE FOR TERMS—

MAUDE'S MOTOR MART,

POWELL STREET, HALIFAX
(behind the Victoria Hall).

Telephone 433 day, 904 night.

MOTOR BICYCLES FOR SALE.

2½ h.p. Motor Cycle, going order; £6. —26, Manor Grove, Richmond, Surrey.

RALEIGH, 3 h.p. Fafnir, chain driven, spray; £12.—Cross, jeweller, Rotherham.

MAGNETO Minerva, 2¾ h.p., 1907, new; cost £37, accept £23.—Barrett, confectioner, Southwell.

2½ h.p. Triumph, no faults; worth £20, sacrifice £12 10s.—Bradley, Worthington, near Wigan.

J.A.P., 2½ h.p., 1907, excellent condition, only ridden 400 miles; offers.—Fern Lea, Bolton-on-Dearne.

£9.—2 h.p. Quadrant, improved contact, spray, ready for road.—Hill, Princes Road, Buckhurst Hill.

2½ h.p. Kerry, spray, good running order; £10.—E.H., 175, Gillingham Road, Gillingham, Kent.

5½ h.p. Twin N.S.U., accumulator, perfect; lowest cash price £23 10s.—Towler, Bowerham, Lancaster.

3½ h.p. 1907 Magneto N.S.U., 24in. wheels, very low frame; £19 10s. first cash.—Wauchope's, 9, Shoe Lane, London.

£7.—Ormonde, 2 h.p., excellent little machine, in good going order, ready to ride away.—69, Hill Rise, Richmond, Surrey.

1907 Triumph, magneto, new condition, faultless, Goodrich non-skid, Rich tubes, lamp, spares; £35.—Fayle, Temple Road, Dublin.

1½ h.p. New Hudson-Minerva, handle-bar control, spares, going order; £7, or near offer.—Lush, grocer, Chertsey Road, Woking.

3½ h.p. Quadrant, spring forks, ridden 1,000; £20, lowest; photo; accept 26in. frame variable geared cycle as part payment. — 3, St. James' Street, Brighton.

SAROLEA, 3 h.p., Simms-Bosch magneto, Xl'all spring forks, low frame, adjustable pulley, tyres nearly new, in perfect running order; £21 10s.—West, builder, Moreton-in-Marsh, Glos.

BAT Twin, 5-7 h.p., and sidecar, all accessories, and spares, £45; Minerva twin, 4½ h.p., both superb condition, £22; trial; take push bike part payment.—Sidney, 41, Green Street, Cambridge.

3¼ h.p. Light Low Rex, M.O.V., Guenet trembler, Longuemare, Watawata, foot brake, M. and B. switch, perfect condition, engineer owned; trial; £12 10s.—D. Lidderdale, Weeping Cross, Stafford.

FOR Sale, 4 h.p. Kelecom-Ormonde, spring saddle, spring handle-bars, lately re-bored, and new piston fitted, in splendid going order; £13, or offers.—W. Gilbert, Bourton-on-the-Water, Gloucestershire.

APPROVAL, 3¾ h.p. Rexes, spring forks, scarcely used, £15 10s. each; 3½ h.p. Triumph, as new, £28; 4½ h.p. twin Minerva, £26 10s.; exchanges entertained.—Smith, Ford Street, Saint Mary, Nottingham.

C.I.E., 2¾ h.p., spring forks, latest Advance adjustable pulley, long handle-bars, spares, including cover and tube, two accumulators, little used; £14.—Write, Knight, Riverside, Pulborough, Sussex.

1907 3½ h.p. Quadrant, new condition, spring forks, absolutely perfect, beat most machines on the road for power and reliability; sacrifice £28, or exchange.—Motor, 3, New Norfolk Street, Shoreditch, London.

1907 3½ h.p. Minerva, spring forks, practically brand new, little used, magnificent condition throughout, crawl in traffic, climb a steeple, wonderful machine; absolute bargain, £20.—Motorist, 5, Norfolk Street, Shoreditch, London.

EXCEPTIONAL Offer.—4 h.p. Kelecom, splendid condition, low build, 26in. Clinchers, nearly new, two spare, non-skid back, two new accumulators, engine just overhauled, new contact breaker fitted, spare pulley, three belts, lamp, stand, two bags, horn, spares; first cheque £16.—White, Brewery, Crumlin, Mon.

MOTOR BICYCLES FOR SALE.

STOCKPORT.—1907 3½ h.p. Triumph, brand new, 2¾ Dunlops, perfect, new October last; £35.

STOCKPORT.—1907 4 h.p. N.S.U., magneto, two-speed gear, almost new; 30 guineas.

STOCKPORT.—1907 Roc, magneto, only run 500 miles, 2½ Hermetic tyres; 31 guineas.

STOCKPORT.—Most of above and several others taken in part payment for Midget Bicars ("Built like a Car") at recent Belle Vue Show; new catalogue now ready.—Lund and Davies, Heaton Lane, Stockport.

ROC, 4 h.p., 1907, free engine, etc., like new; £27.—16, Mayfield Avenue, Halifax.

ROVER, 3½ h.p., good condition; £12.—Haines, 9, Avonmore Mansions, Kensington.

2¼ h.p. Clarendon, in good order; bargain, £8 10s.—Young, 59, Friera Road, East Dulwich.

3½ h.p. Minerva, in Chater-Lea frame; £11 10s., very powerful engine.—Wauchope's, 9, Shoe Lane, London.

2½ h.p. J.A.P., perfect and faultless; £12.—Woodward, Park Avenue, Handsworth, Birmingham.

2¾ h.p. F.N., new tyres and belt, Brooks B100, powerful; photo; £10.—6, Poulton Road, Southport.

£6.—2¾ h.p. Humber, splendid condition, girder forks, trembler, lamp, stand, horn.—6, Hall Road, Maida Vale.

2⅝ h.p. Vindec Special, in perfect running order; £14 very lowest.—Wauchope's, 9, Shoe Lane, London.

TWO-SPEED Brown, 3½ h.p., Phœnix gear, and free engine clutch, good as new; £18.—Bunting, Wealdstone.

BAT, 3½ h.p., another grand machine, very fast, £15 15s.; also one or two cheap ones, including 2¾ h.p. F.N., 2 h.p. Minerva, etc.; push bikes in exchange if required.—Bunting, Wealdstone.

3½ h.p. Kerry, Longuemare, Clinchers, recently overhauled; £14; see Forecars.—Horncastle, outfitter, Grays.

3½ h.p. Vindec, magneto ignition, 26 by 2½ Palmer tyres, Brooks B100 saddle; £22.—Eagles and Co., High Street, Acton.

3½ h.p. N.S.U., magneto ignition, 26 by 2¼ tyres, excellent condition; £20.—Eagles and Co., High Street, Acton.

3½ h.p. N.S.U., magneto, £25; 3½ h.p. Quadrant, £25; both in perfect condition.—McClure, Latchford, Warrington.

4 h.p. M.M.C. Pattern Motor, very fast and powerful, spring forks, etc.; £12 10s.—Wauchope's, 9, Shoe Lane, London.

TRIUMPH, 1906, magneto, as new; £26 lowest; reason selling, time occupied with car.—"Herald" Office, Harrogate.

GOOD Opportunity to secure 2½ h.p. F.N., perfect running order; £12, offers.—Marshall, 4, Duckett Road, Harringay, N.

9 h.p. Jap, Chater-Lea, Phœnix two-speed gear, perfect order, not done 200 miles; offers.—Apply, 22, Braid Road, Edinburgh.

2¾ h.p. Phœnix, fitted with two-speed gear, do thirty miles per hour; £17 10s.—Wauchope's, 9, Shoe Lane, London.

TRIUMPH, 1907, 3½ h.p., magneto, Advance pulley, unsoiled, £3 worth spares, accessories, etc.; £33.—5, Grove Villas, Wanstead.

3½ h.p. Rex, Chater-Lea fittings, spring forks, footrests; nearest offer to £12 accepted.—62, Colvestone Crescent, Dalston, London.

3½ h.p. Ariel, in condition as new, spring forks, genuine second-hand machine; £15 15s.—Wauchope's, 9, Shoe Lane, London.

2¾ h.p. Genuine De Dion, in perfect running order, fast and powerful; £8 15s., lowest possible price.—Wauchope's, 9, Shoe Lane, London.

You can start easily, climb any hill, crawl in traffic, and do lor things you can't do now if you fit your bicycle with the

Phœnix Two-speed Gear.

£7 10s. to £8 15s., Belt or Chain. Up to 5 h.p.

PHŒNIX MOTORS, LTD.,
Blundell Street, London, N.

TRIUMPH
MOTOR CYCLES.

Agents for South-West of London—

. . THE . .

HULBERT-BRAMLEY MOTOR CO.

(S. W. DOWGLASS),

96, Upper Richmond Road,

PUTNEY, S.W.

EARLY DELIVERIES.

SECOND-HAND MACHINES TAKEN in PART PAYMENT.

SPARE PARTS for all machines.

GENERAL REPAIRS.

1908 TRIUMPHS,

Immediate delivery from stock.

Price £48 0 0 nett.

Including Lamp, Horn, and all Accessories.

Trials arranged.
Satisfaction guaranteed.

ERIC S. MYERS,
"NO WORRY DEPOT,"
BRADFORD.

Also six 1907 TRIUMPHS, almost new, to be cleared cheap.

MOTOR BICYCLES FOR SALE.

3½ h.p. Minerva, fitted with Phœnix two-speed gear; an ideal machine for passenger work; £19 10s.—Wauchope's, 9, Shoe Lane, London.

BARGAIN.—Twin Peugeot engine, Chater fittings, Clinchers, perfect condition, very low; £25, or near offer.—Motor, 41, Keslake Road, Kensal Rise.

5½ h.p. 1907 Rex de Luxe, free engine clutch, twin wheels, condition as new; £26 10s.—Garaged at Wauchope's, 9, Shoe Lane, London.

3 h.p. De Dion, Chater-Lea, accumulators, Clippers, running order; £14, or reasonable offer; reason of sale, no time for use.—H.B., Hortus House, Southall.

3 h.p. N.S.U., magneto, perfect, unpuncture, late 1907; £22, or exchange with cash for higher powered magneto.—A.W., 15, Charlotte Street, South Shields.

3½ h.p. Twin Werner, spring forks, guaranteed thorough running order, almost new tyres, two new belts, spares; trial; £12.—Kay, Albion Terrace, Horsham.

1907 Twin Rex, very little used, exceptionally easy starter, very powerful, stand, carrier, etc.; £18, no offers or exchanges; any trial here.—Deane, 51, Statham Street, Derby.

3½ h.p. Peugeot, large double silencer, carrier, spring pillar, B100, two accumulators, electric horn, spares, excellent condition; £25.—S., 46, Scarisbrick New Road, Southport.

GOODWIN Motor Cycle, 3½ h.p. White and Poppe, Chater-Lea fittings, low built, up-to-date, equal to new; £26; seen any time.—Matthews Bros., 96, West Green Road, Tottenham.

BAT, 2¾ h.p. De Dion engine and carburetter, spring frame, fast, reliable, comfortable, grand hill-climber, many prizes; £22, or near offer.—Botwood and Egerton, Ipswich.

LATEST 6½ h.p. Chater-Lea Motor Cycle and Sidecar, magneto, spring forks, practically new; will accept lower powered motor cycle in part.—A. H. Soper, 307, Clapham Road, Clapham.

3 h.p. Rover, fine condition, Dermatine belt, handle-bar switch, Bassee-Michel coil, all accessories; £14 14s., or offer; seen by appointment.—R.S., Mosspaul, Longley Road, Harrow.

4½ h.p. Twin Minerva, Chater-Lea frame, Druid spring forks, 2½in. Palmer tyres, in first-class order; price, including numerous spares, £27 10s.—Hayward, Skinnergate, Darlington.

2 h.p. Minerva, Chater-Lea frame, tyres excellent, studded back, large saddle, all accessories, only wants seeing; £8, or nearest offer; bought tricar; want cash.—1, Kimberley Avenue, Seven Kings, Essex.

3½ h.p. Excelsior, recently overhauled, Longuemare carburetter, brand new Continental and Peter-Union tyres fitted, splendid hill-climber, and in perfect condition; £13 15s.—Bolsover, solicitor, Stockton-on-Tees.

7-8 h.p. Peugeot-Daneville, De Dion carburetter, special Lincona, Dunlops, 2½in. back, climbed 1 in 8 at 52 m.p.h., absolutely as new, not run 500 miles, spares; buying car; 30 guineas.—294, Kennington Park Road, S.E.

BOWDEN, F.N., 2 h.p., chain drive, Chater-Lea light frame, free engine, handle-bar control, P. and R. armoured accumulator, Palmers, carrier-stand, etc., excellent condition; photo; £15.—A.Z., 34, Coldharbour Lane, S.E.

FAFNIR, 3 h.p., Chater-Lea, 26in. Palmers, two accumulators, Minerva plain coil, spring forks, Chase brake, Price's stand, ⅞in. Dermatine belt, guinea lamp, horn, tools, spares, fast, reliable climber; £14; must sell.—202, High Street, High Barnet.

5 h.p. Twin Kerry 1907 Forecar, Chater-Lea throughout, 2½in. Palmer cords, two accumulators, horn, and foot pump, synchronised ignition, two-speed and reverse, handle starting, spring frame; 42 guineas.—Ayden, 17, Blackstock Road, Finsbury Park.

MOTOR BICYCLES FOR SALE.

EASTBOURNE.—7-9 h.p. Peugeot, very low and fast, 24in. wheels, nearly new; £40.

EASTBOURNE.—3 h.p. Fafnir, Chater-Lea throughout, 2¾ Clinchers, with non-skid on back, Whittle belt, all spares and accessories, practically new; £25.

EASTBOURNE. — 4 h.p. Zenith Bicar, Antoine engine, jolly good order; £22.

EASTBOURNE.—2¾ h.p. Minerva; nearest offer to £11.

EASTBOURNE.—5-7 h.p. Vindec Special, two-speed gear, 2½ tyres, butted tubes, all spares and accessories, including spare non-skid cover and tube, as good as new; trial any time; £45.

EASTBOURNE.—For quick deliveries of Triumph motor cycles; sole agent for this district. — Roberts, Station Street, Eastbourne.

ROC, 1907, 4 h.p., perfect running order, Brooks studded tyre, new, spare tyre, lamp, tools, foot pump, everything good; £30.—9,377, *The Motor Cycle* Offices, Coventry.

3½ h.p. Ariel No. 1, with Brown and Barlow carburetter, stand and toolbag, in perfect condition; £17 10s., a cheap bargain.—Smith, 42, Preston Street, Brighton.

5½ h.p. Rex de Luxe, magneto, Roc clutch, hardly soiled, also Montgomery sidecar, as new; £40; seen by appointment. — 87, Beverstone Road, Thornton Heath.

2¾ h.p. De Dion Bouton (genuine), Clinchers, Longuemare, trembler, footboards, enamelled cream, long, low, powerful, in first-class condition; £14.—Frank Almgill, Yeadon, Leeds.

1908 Triumph, 3½ h.p., unridden, just received from makers; immediate delivery; tools, horn, and registered; unforeseen circumstances; £46.—J.T., 8, Victoria Terrace, Middlesbrough.

TRIUMPH, 1907, 3½ h.p., magneto, in perfect condition, scarcely used, fully equipped with all accessories; ready for the road; non-skid on back wheel; cost, with accessories, £55, price £35.—No. 9,376, *The Motor Cycle* Offices, Coventry.

4 h.p. Aster, Chater-Lea, cost £45 in August, 1906, absolutely perfect, property of expert, best single-cylinder for sidecar work; accept £17, or exchange lower power first-class 1907 make.—Box 9,379, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

TRIUMPH, 3½ h.p., late 1907, only ridden 600 miles, condition as new, with lamp, horn, spares, etc.; £36, or reasonable offer; buying car.—Wildman, Fairfield, Northumberland Road, Leamington, or Sandpits Enamel Works, Birmingham.

ARIEL, M.O.V., Minerva, 76 by 76 mm., tyres new, also belt, two P. and R. accumulators, fast and reliable, climb any hill, tools, hooter, and spares, machine in good condition; accept £12 10s.; photo.—Adams, Grafton Street, Sandown, I.O.W.

80 by 80 mm. Kerry, F.N. carburetter, Clincher tyres, Pullman non-skid, fast, silent, climb any hill, good condition, Brooks saddle (B100), spares, tools, lamp, and horn; accept 15 guineas. — E.J.D., 12, Melville Street, Sandown, I.O.W.

STAMFORD HILL.—3½ h.p. Minerva, £18; 4½ h.p. twin Minerva, spring forks, new tyres, £26 10s.; 3½ h.p. twin Werner, £16 10s.; 3 h.p. Trent, Chater-Lea, £12 10s.; 3½ h.p. M.M.C., Chater-Lea, £11 10s.; 2 h.p. Rex, 2¼ h.p. Humber, £8 each; 2 h.p. Precision, £6 10s.; 2 h.p. Raleigh, £4 10s.; seen and tried any time.—128, High Road, Tottenham.

ZENITH Bicar, the spring frame motor bicycle de luxe, fitted with 3 h.p. Fafnir engine, two-speed gear, free engine, starts with handle, same way as a car, Longuemare carburetter, Brooks saddle, just re-enamelled, looks equal to new; owner buying higher power same make; cost £52 10s., accept £27 (lowest) for immediate sale; thorough bargain. —Owner, c/o Zenith, 101a, Stroud Green Road, London.

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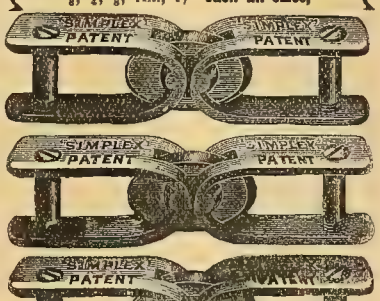

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MOTOR BICYCLES FOR SALE.

MAGNETO Twin Rex, spring seat, Advance pulley, Whittle belt, engine, tyres, magneto, all perfect, wants coat of paint to make fine machine; £16 10s.—Wallis, grocer, Hill's Road, Cambridge.

2 h.p. Minerva, twin accumulators, just thoroughly overhauled, including new Clinchers, costing altogether £4, spring seat-pillar, stand; £10, offer, or push bike part exchange.—Butcher's, 64, High Street, Bromley, Kent.

4 h.p. 1907 Alldays, Simms-Bosch magneto, Palmer cord, low, fast; trial; £24; also Ormond, 1906, 2¾ h.p., Palmer cord, spares, splendid condition; trial; £12; various accessories, oddments, tools. —87, Wharton Road, Shepherd's Bush.

FORTUNE'S Best Gifts.—2 h.p. Raleigh, 3 h.p. Givaudan, £16; 3½ h.p. Minerva, £16 10s.; 3½ h.p. Phelon and Moore, magneto, £35; 3½ h.p. Rex, £13 10s.; 2¾ h.p. Minerva, £12 10s.; Rex de Luxe (unridden), black finish, £35; shop-soiled 3½ h.p. 1907 Rex, spring forks, magnificent mount, £19 19s.; twin Rex, £22; 3 h.p. M.M.C., £13; twin Werner, £19 19s.; 3½ h.p. Hobart, £14; 3 h.p. Givaudan, £14 10s.; 3 h.p. Clarendon, £13 10s.; 2¾ h.p. De Dion, £12 10s.; 7 h.p. Peugeot, £30, nearly new; 3 h.p. Rover, £13 10s.; 4 h.p. Antoine, £16 10s.; 3½ h.p. magneto Simms, £17 10s.; 4 h.p. Jap, £23. torpedo; twin Antoine, £25; 2 h.p. Minerva, £7; 2 h.p. Quadrant, £8; 2 h.p. Standard, £8; 2¾ h.p. Antoine, £9 10s.; 2 h.p. magneto Simms, £9; 3 h.p. Hobart, £10; 3 h.p. Rover, £13 10s.; 3½ h.p. Rex, £9 10s.; spring fork Rex, £14 10s.; 5 h.p. Rex, £18; 3½ h.p. Kerry, £18 10s.; 2¾ h.p. F.N., £12 10s.; 2¾ h.p. De Dion, £14 10s.; 3½ h.p. N.S.U., magneto, spring forks, £24; Rex de Luxe, £27 10s.; twin Werner, £16; twin N.S.U., £25; 3 h.p. M.M.C., £13; 3 h.p. Humber, £10 10s.; 3½ h.p. Minerva, £18 10s.; soiled, £23; twin Alcyon, £22; 3 h.p. Lloyds, £14 10s.; 4 h.p. Coronet, £16; 1¾ h.p. Simms, £6; 2¾ h.p. Antoine, £7; 3½ h.p. Rex, spray, adjustable pulley, £10 10s.; cash, exchange, or extended payments.—Halifax Motor Exchange, 16, Westgate, Halifax. Telephone, 766.

TRICARS FOR SALE.

5 h.p. Riley Tricar, water-cooled, two speeds, car tyres; £32.—Below.

TWO-SPEED Tricar, 3½ h.p. Quadrant engine, Phœnix gear, belt drive, grand goer; £19.—Below.

3½ h.p. Minerva Tricar, M.O.V., Longuemare carburetter, fan-cooled; £18. —Farrar, Square Road, Halifax.

3 h.p. Kerry Tricar, perfect order; £14, or exchange.—L. Brown, 7a, Marischall Road, Lee, S.E.

HALIFAX.—5½ h.p. 1906 Rexette, two speeds, water-cooled, torpedo model, good order; £37 10s.

HALIFAX.—4½ h.p. Stevens, spray, long footboards, fine order, tyres almost as new; £21.

HALIFAX.—6 h.p. twin Antoine tricar, Chater-Lea, a real gem, open frame, three speeds, wheel steering, chain drive, foot clutch; £39 10s.

HALIFAX.—5 h.p. Humber tricar, two speeds, open frame, wheel steering, almost as new; £45.

HALIFAX.—Quadrant Carette, 6 h.p., open frame, wheel steering, two speeds, coach-built, latest model, £35, cost £100.

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HALIFAX.—4 h.p. Rex tricar, Phœnix two-speed gear, good running order; £21.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built, four-speed gear; £37 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

3 h.p. Quadrant Tricar, in perfect condition; £17.—Pyle, 1, Westbourne Crescent Mews, Paddington.

3½ h.p. Tricar, Minerva engine, Chater-Lea frame, in perfect order; £20. —Fallick, Aldingbourne, Chichester.

TRICARS FOR SALE.

6 h.p. Riley, good going order, spare cover, chain, valves, etc.; £55.—Rochford, College Road, Cheshunt, Herts.

4 h.p. Water-cooled Tricar, new belt, all accessories, Whitley engine; £17 10s., or offer.—20, Battenberg Road, Kew Gardens, S.W.

5-6 h.p. Twin Rex Triette, two speeds; £22; motor cycle as part.—Pyne's Furniture Stores, Lewisham High Road, New Cross.

QUADRANT Tricar, 5½ h.p., coach-built, two-speed, free engine, good running order; bargain, £30.—Neale, London Road, Pulborough.

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MAUDE'S.—Riley Tricar, two speeds, handle starting, 4½ h.p., water-cooled, pump circulation, foot clutch and brake, perfect; £36.

MAUDE'S.—Rex Triette, 6 h.p., footboards, new front tyres, non-skid to rear, very good condition; £28.

MAUDE'S.—Humber Tricar, chain drive, trembler, very good tyres, spray carburetter, 2¾ h.p.; £15.

MAUDE'S.—Garrard, 5 h.p., three speeds, water-cooled, spray, non-skid, very comfortable; £30.—Maude's Motor Mart, Powell Street, Halifax.

A SNIP.—3½ h.p. Minerva tricar, Phelon and Moore, two speeds, non-skids; must be sold; £22, or offer; perfect.—128, High Road, Tottenham.

6 h.p. Water-cooled Rexette, open frame, two speeds, perfect condition; any trial; reasonable offer accepted.—Moore, Lapal Lodge, Quinton, Worcester.

5 h.p. Avon Tricar, water-cooled, three speeds and reverse, three lamps and horn, good order; £30.—J. S. Willway and Sons, Ltd., St. Augustine's, Bristol.

REX Triette, the light tricar, 5½ h.p., twin-cylinder, in perfect order, fully equipped, ready for road; £28; photo; trial.—22, Victoria Terrace, Leamington.

LAGONDA, 10-12 h.p., 1907 machine, wheel steering, three speeds and reverse, Dunlop tyres, and non-skids, in perfect condition; £95. — C.H.C., Moor House, Staines.

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TRICAR, 4 h.p., Aster engine, w.c. head, Bozier two-speed, chain drive, Chater-Lea frame, in perfect order, fast and reliable; £25; make appointment.—A., 11, Norfolk Mansions, Prince of Wales Road, Battersea, S.W.

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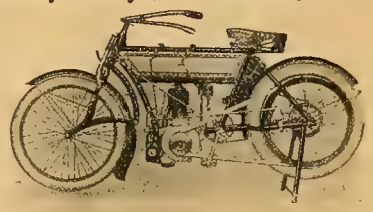

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4 h.p. ROC, magneto, free engine	21	0
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ANGLIAN Tricar (3½ h.p.), water-cooled De Dion, chain drive, two speeds, foot clutch; £19.—Ascott, 107, The Grove, Stratford, Essex.

HUMBER Tricar, 3½ h.p., coach-built forecarriage, free engine clutch, starting handle; £16 10s.—145, Clarence Road, Clapton, N.E.

PHŒNIX Tricar, Minerva engine, two-speed gear, belt drive; £12 10s., or near offer; trial any time.—Hardy, 36, Rosemont Road, Acton.

5 h.p. Humber Tricar, open frame, wheel steering, two speeds, coach-built, almost as new; £40.—No. 9,374, *The Motor Cycle* Offices, Coventry.

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3 h.p. Humber Tricar, Dunlop car tyres, spares, perfect condition; sell cheap, or exchange motor cycle, Minerva preferred.—Siddall, Burnblea Street, Hamilton.

3½ h.p. Light Tricar, Mabon clutch, Longuemare, trembler, footboards, handle starting, Ideal fan, excellent condition; bargain, £20.—32, Oakhill Road, Putney.

MANCHESTER.—6 h.p. tricar, Oppermann two-speed gear, and free engine, perfect condition, and reliable; £40; bought car.—Roseland, Park Road, Timperley.

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REXETTE, 5 h.p., two speeds, wheel steering, just been thoroughly overhauled and renewed, tyres perfect, new Brooks band and Riche tube on back new accumulator, lamps, and horn; £35.—Patterson, 13, George Street, Edinburgh

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4½ h.p. Twin G.B. Cycle, Simms-Bosch magneto, Nala two-speed gear and free engine, Whittle link belt, spares etc., with coach-built forecar, upholstered leather, enamelled cream, beautifully sprung, 2½in. Peter-Unions, perfect £42.—Turner, Ship Hill, Rotherham.

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28 by 2 Special Heavy Non-slipping beaded edge covers; 12s. 6d. each.—Farrar, Square Road, Halifax.

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BRAND New Covers, best makes, 14s. 9d.; inner tubes, 28 by 2, 5s. 6d.; 28 by 2¼, 5s. 9d.; 28 by 2½, 6s.—Halifax Motor Exchange, Westgate, Halifax.

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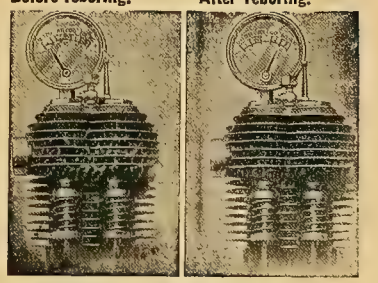

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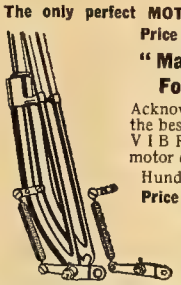

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TYRES.

10S. Allowed for your old cover, any condition, in exchange for new Goodrich all-rubber non-skid.—Below.

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IRIDIUM Champion "Indestructible" Contacts; warranted pure; special trimmers for polishing iridium, 9d.; no filing required.

IRIDIUM Champion "Indestructible" Contacts; hundreds in use.—Williams, 16, Wellington Street, Woolwich.

BELLENGER will tune up your machine to give full power; moderate charges.—Queen's Buildings, Old Bailey.

CRACKED Water Jackets of motors successfully repaired by Lea's metallurgical process.—Lea and Son, engineers, Runcorn.

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REPAIRS and Overhauling. — We have the finest repair works in London for motor cycles, with up-to-date machinery; estimates free; new cylinders for any make of engine, pulleys, valves, gears, and all replacements; send for our new booklets, with prices.—Laystall Motor Engineering Works, 27 and 29, Laystall Street, Rosebery Avenue, E.C.

EXCHANGE.

EXCHANGE Half-plate Camera and tripod for new non-skid.—Nagley, Bridge Hill, Goole.

2¼ h.p. Minerva and Sidecar and Britannia lathe, for higher power. — 186, Derby Street, Bolton.

EXCHANGE Whole-plate Camera, with outfit, for sidecar.—Hogan, 13, Lingen Street, Bromley, London, E.

CHAPMAN (enclosed) Fan; exchange Whittle belt, ¾in., 8ft. 6in., or sell 14s.—Hogg, 27, Elcho Street, Preston.

TRIUMPH Lightweight, 2½ h.p., trial, etc., for 1907 lady-back Raleigh, no cash.—61, Denmark Hill, Camberwell.

EXCHANGE 3½ h.p. Norman engine and new 22in. road racer for motor cycle.—17, Landcroft Road, E. Dulwich.

EXCHANGE

EXCHANGE Lady's Free-wheel Bicycle, good order, for gramophone, side-car, or trailer.—Masterson, Rathdowney.

WANTED, 28 by 2¼ beaded cover; for sale, 2¾ h.p. De Dion water-cooled head; exchange.—61, Byron Street, Derby.

NEW B. and B. Carburetter, for 5 or 6 h.p., for one suitable 3 or 3½ h.p.—Porter, 8a, Shandon Road, Clapham, S.W.

EXCHANGE 2 h.p. motor cycle, vertical engine, for cycle or hand drilling machine and cash.—Walker, King Street, Bristol.

VERTICAL Gas or Petrol Engine, 1¾ by 3½; exchange for motor goods to value 50s.—335, Gladstone Street, Peterborough.

EXCHANGE Abingdon free-wheel cycle and cash for Montgomery flexible sidecar.— Matthews, 86, High Street, Merton, Surrey.

EXCHANGE 2¾ h.p. Alldays, spring forks, 26in. wheels, splendid running order, for cycle and cash.—13, Cadogan Road, Cromer.

CATS for Dogs and Motors for Motors; 1908 lists now ready; prompt delivery of new models.—Maude's, Powell Street, Halifax.

HALIFAX.—What do you want? We exchange motor cycles, tricars, cars, or 1908 Rex and N.S.U. models; list on application.

REX Twins, 6 h.p., very powerful, spring forks, £22; £16 allowed for 1906 Rex, £13 1905, £11 10s. 1904, or £10 10s. for 1903 Rex in part payment. Hurry up and get the pick.—Halifax Motor Exchange, 16, Westgate, Halifax.

5 h.p. Peugeot Engine, coils, carburetter, and silencers, for 3½ h.p. Jap, Peugeot, Buchet; no scrappers; or sell.—Shaw, Wellington, Salop.

LIGHT Car, two-seater, 7 h.p., running order, belt and gear drive; exchange good motor cycle, or offers.—D. Williams, Marston House, Hereford.

EXCHANGE, for magneto motor cycle, Broadwood's celebrated five-octave pianette and cash, or sell for £4 10s.—Wakefield, Bildeston, Suffolk.

GOOD Gramophone, by the Gramophone Company; exchange for good engine, with carburetter preferred. — Bert, 5, Oakdale Road, Upton Park.

EXCHANGE 2½ h.p. Jap, perfect condition, for gent's high-grade bicycle, Sunbeam preferred, and cash.—Hanson, Misterton, near Gainsborough, Notts.

GENT'S Tandem, Palmers, plated rims, free-wheel, two brakes, for 2 h.p. motor cycle, in good running order.—Shamrock, Cycle Works, Ramsey, Huntingdon.

5-6 h.p. Twin Nearly New Kerry Engine, exchange good low 3 h.p. and cash, or 3 or 3½ h.p. magneto, level, or sell £22.—Baigent, Hughenden Road, High Wycombe.

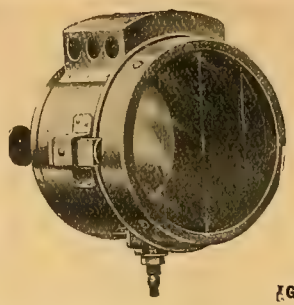
3½ h.p. 1906 Minerva, perfect condition, Peter-Unions, for racing push bicycle and cash; sell £18; any trial given.—Smart, jun., 13, Playfield Crescent, E. Dulwich.

TANDEM, lady-back, Chater-Lea, leather gear case, etc., and cash adjustment, for a 3½ h.p. vertical known make motor bike, low build.—B.R., 54, School Road, Sale, Cheshire.

EXCHANGE Concert Orchestrion, wants slight repair, driven by small hot-air engine, few rolls of music, for motor cycle, give little cash.—Lewis, Cardigan Street, Oxford.

SALE or exchange, pony, trap, harness, complete, and 2¾ h.p. Werner motor cycle, good order, for higher power cycle, value £18.—Clack, Henley Street, Stratford-on-Avon.

EXCHANGES of any description are arranged through us with advantage to riders; we make a liberal allowance for your present machine in part payment for Triumphs, N.S.U., Quadrants, Minervas, Motosacoches, F.N.'s, Motoreves, Vindec Specials, etc.—Wauchope's, 9, Shoe Lane, London.



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TUBE REPAIRS, from 9d. each.

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The following Second-Hand machines we guarantee as sound:

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Two 3 h.p. N.S.U.'s, Magneto	**24**	**0**
1907 5½ Twin N.S.U., with Two-speed Gear	**40**	**0**
1907 3½ Triumph, as new ..	**35**	**0**
3½ Twin Werner, plating and enamel new	**18**	**10**

We can give liberal exchanges for N.S.U. LIGHTWEIGHTS, which we can deliver from stock.

THE MOTOR MART,
UNION STREET, BRIGHTON,
Agents for N.S.U.'s, Vindec Specials, and Quadrants.

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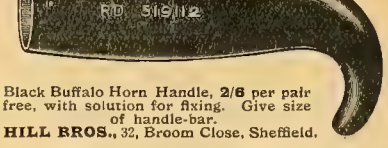

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GENUINE 3½ h.p. Sunbeam-Mabley Car, water-cooled, two speeds, new condition, for Triumph, 1907, or other good magneto cycle, or sell £25. — 3, Warren Road, Southport.

EXCHANGE 5 h.p. Fafnir, water-cooled, single, with lugs and bed plates, guaranteed perfect, for 5 h.p. twin, air-cooled, cash adjustment.—Burgess, Colliergate, York.

EXCHANGE for good motor cycle or tricar, furniture, any description, direct from the works, valued wholesale. —Furniture Manufacturer, 3-5, New Norfolk Street, Shoreditch, London.

EXCHANGE Half-plate and quarter-plate stand cameras, perfect, for 28in. motor tyres, carburetter, petrol tank, or anything useful tricar.—Box No. 9,371, *The Motor Cycle* Offices, Coventry.

EXCHANGE 6 h.p. Quadrant tricar (close frame), belt drive, coach-built front, in perfect condition, for 3½ h.p. Triumph or Minerva, cash adjustment either way. —Pembroke, Fairleigh Drive, Leigh-on-Sea, Essex.

WILL Exchange 2¾ h.p. Werner, Osborne free engine, spring forks and seat, nearly new, and 3½ h.p. Excelsior, for good tricar, both machines in perfect going order.—A.F., 12, Fishergate, York.

MOTOR Cycle, ready to assemble, perfectly new engine, frame, tanks, wheels, F.N. carburetter, silencer, coil, Clincher covers; exchange three-speed push bike, or £6.—5, Nillman Street, Bedford Row, London, W.C.

2¾ h.p. F.N., guaranteed, Chater-Lea No. 6 frame, 26in. by 2¼in. Palmer cord tyres, footboards, etc.; exchange with a high grade pedal cycle, almost new, for higher power machine.—5, Oakdale Road, Forest Gate.

ADVERTISER offers two-seated car, 6 h.p. De Dion engine, three speeds and reverse, in exchange for 1908 motor cycle and sidecar, Vindec or Phelon and Moore preferred; appointment.—5, Lorrimore Buildings, Walworth.

EXCHANGE Ariel Tricar, 3½ h.p., fan-cooled, M.O.V., perfect condition, two accumulators, and cash, for two low-built motor cycles with clutches, or sell £20. Telephone, 6137 Central.—Alsace Villa, Havelock Road, Croydon.

WANTED.

RILEY, Singer, or Phœnix tricar, about 6 h.p.—R. Else, Leawood, Matlock.

WANTED, engines (motor cycle), 3 to 9 h.p.—128, High Road, Tottenham.

WANTED, 28 by 2 non-skid cover; approval.—Osborne, 99, Roebuck Road, Sheffield.

TRIUMPH, 1907, at low price.—Full particulars, Ford, 66, Mulgrave Street, Liverpool.

WANTED, engine, about 3 h.p. Fafnir preferred, vertical position.—Dunn, Blandford.

MOTOR Cycle (1907) wanted, 3½ h.p., magneto.—Particulars, 3, Meteor Road Westcliff, Essex.

GOOD Motor Bicycle, about 3½ h.p., and sidecar, or separate.—Geary, 245, High Street, Hounslow.

WANTED, Fullers latest trembler coil, single-cylinder, large size. — Russell, Borrowcop, Lichfield.

WANTED, motor tricycle; also 26 by 2 or 2¼ or 2½ tyres; cheap.—J.M., 111, Larkhall Lane, Clapham.

WANTED, Nala two-speed hub, fitted to 2½in. rim, and castor wheel sidecar.—Frowd, Seaside, Eastbourne.

MOTOR Bike, in exchange for new £10 Rudge push bike, cash adjustment. —C.L., 110, North Street, Barking.

WANTED, low frame motor cycle, in exchange for 2¾ h.p. Aurora, 28in. wheels, and cash. — Smith, 20, Walpole Road, New Cross.

WANTED, 1908 model Phelon and Moore (with sidecar preferred); spot cash if cheap. — Write, Motor, 16, Camberwell Gate, S.E.

THE MOTOR CYCLE

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

The F.A.M. and the End-to-End.

TWO or three American readers have called our attention to a paragraph published in the *Bicycling World*, New York, regarding American motor cyclists participating in the Auto Cycle Union's Land's End to John-o'-Groat's trial. The paragraph reads as follows: "It is likely that several American motor cyclists will 'cross over' to participate in this year's British reliability trial. If they do so, it will be in the nature of bidding good-bye to their amateur standing in America, that is, unless the British governing body alters its rules which permits amateurs and professionals to mix and to accept cash or medals at their option. The rules of the F.A.M. do not recognise that sort of shamateurism, and as the Amateur Athletic Union also has ruled against the acceptance of such 'amateurs,' American motor cyclists and automobilists who may hereafter compete under the peculiar and inconsistent foreign regulation now know what to expect." Last year Mr. T. K. Hastings was the only American competitor in the six days trials, and he was so pleased with the sporting nature of the competition, and the way in which English motor cyclists welcomed him, that he has expressed his intention of competing again, and has also endeavoured to induce others to accompany him to England this year to participate in the End-to-end trial in June.

According to the paper referred to, any competitors from over the water who take part in the British End-to-end trial will forfeit their amateur status in America, as the Federation of American Motor Cyclists does not recognise amateurism when amateurs and professionals are allowed to compete together, *and to accept cash or medals at their option*. It is news to us that the A.C.U. allows competitors in reliability trials to accept cash or medals at the winner's option, and the American writer has undoubtedly made a grievous error. Medals have been the only awards made in reliability trials since they were first organised. In the last Tourist Trophy Race cash prizes were offered, but not in the trials. We understand that the president of the Federation of American Motor Cyclists, Mr. Betts, is also the editor of the paper in which the paragraph was published, and it is almost certain that this gentleman has not yet mastered the rules of English competitions, or he would never have written threatening the excommunication of American motor cyclists who compete in the *private owners' class* in the End-to-end ride. With the exception of the private owners' classes, there has been very little said or done in England, or any other country, in the way of dividing professionals from amateurs in motor competitions. We have always advocated that it is advisable to have classes for riders who own their machines and pay all their own expenses, because it encourages them to enter and compete in events in which professional riders are entered without entering into direct competition with them; that is, if private owners think they have not the same chance as trade riders there is a special class for them alone. This is of assistance to the pastime, and we think it is a distinctly narrow-minded action on the part of the Federation of American Motor Cyclists to threaten to disqualify or professionalise all American amateur motor cyclists who compete in the End-to-end trials just because there are trade riders in the same event who are interested in the machine they ride, and whose expenses are paid by the firms they represent. From reports we have received, quite a representative

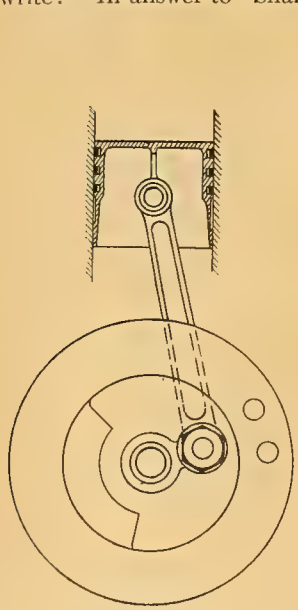
and enthusiastic little party of American motor cyclists expected to take part in the End-to-end ride this year, and we still hope if proper representation is made to the F.A.M., and it is explained that there is a separate and distinct class for private owners, and that they do not compete for cash and medals at their option, it might be induced to withdraw the threat of the president. It is to be hoped the opinion is not that of the committee, as the president has, so far, only published the paragraph in his paper, and there appears to be no definite ruling on the subject at present. As far as we can judge, there appears to be a considerable amount of latitude even with regard to "shamateurism" in the land of Stars, Stripes, and Trusts. According to a prominent motor cyclist in this country who has had considerable experience of American methods, at one time the League of American Wheelmen instituted a class which it called Class B amateurs who were employees of bicycle manufacturers. These men received a salary, bicycles galore, and all their expenses. They were obviously professional riders, but were never relegated to the professional ranks, and were conveniently styled "Class B amateurs." English sportsmen would not stand this sort of thing. A man is either an amateur or a professional. There should be no grades in either class.

The Balancing of Petrol Engines.

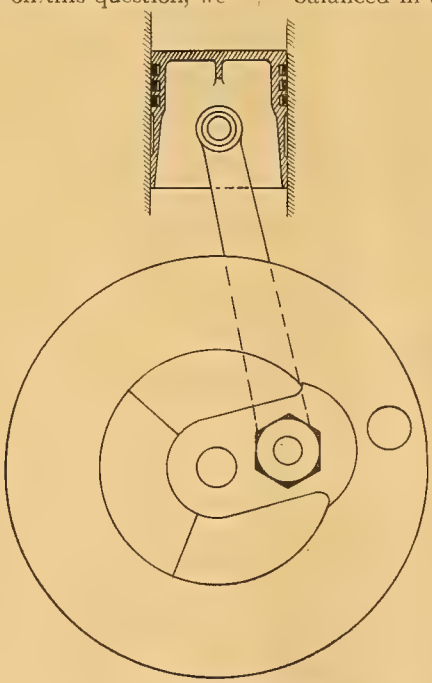
A FORTNIGHT ago a correspondent who signed himself "Shazbazzik" wrote a letter regarding the imperfect balancing of engines. This has aroused considerable interest, and further correspondence on the subject is published this week.

The Rex Motor Manufacturing Co., Ltd., Coventry, write: "In answer to 'Shazbazzik' on this question, we must take exception to the remark, 'Can anyone tell me why our best engine makers continue to make engines which are balanced in this way?' We think without egotism we can say we are at least one of the best British engine makers, having made petrol engines for the past eleven years, and having manufactured during this period certainly more petrol engines than any other firm in Great Britain, and probably in the world. Why he does not look to the oldest and largest manufacturers for this information we cannot say, but the enclosed drawing showing three types of Rex engines properly balanced is a proof that we at least know our business.

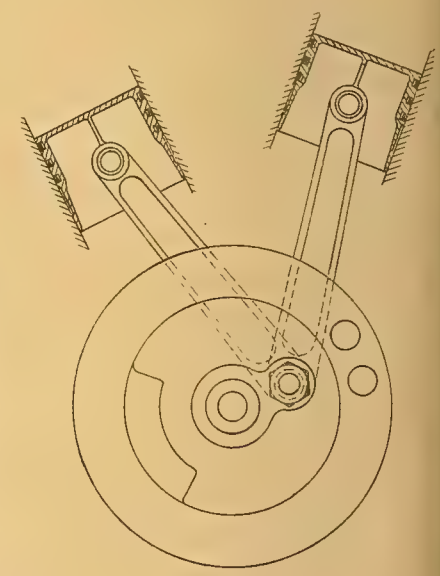
"With reference to the sketch, all Rex engines are balanced in the following monner, *i.e.*, every pair of flywheels have balance weights cast on them corresponding to the weight of the piston, connecting rod etc. In the event of the weight being found insufficient to obtain the true balance, holes are drilled on the opposite side of the wheel as shown in the sketch. The size of the holes and distance apart determine the adjustment of the balance."



2½ h.p. single cylinder.



5 h.p. single cylinder Rexette.



5 h.p. twin-cylinder.

On September 21st next the First International Rubber Exhibition will be held at the Royal Horticultural Hall, Vincent Square, Westminster, S.W. All classes of rubber articles will be shown, and those which will be of special interest to our readers will be tyres and their accessories, and also cables and insulated wires for ignition purposes.

We are informed by Mr. V. L. Fellows that he has accumulator repair shops situated in the most central part of London, namely, 49, Hertford Street, Mayfair, W. He undertakes the repair of any make of cell on the shortest notice and at moderate prices, and has always a large stock of Mayfair accumulators and second-hand batteries of other makes.

Through the Trough of Bowland.

WE had made the trip of the Trough more than once on foot, but had hesitated to face the ordeal of rough roads and precipitous hills on a motor bicycle, knowing that if our mounts should prove to be incapable of surmounting some of the steep gradients it was woe betide us, and for our sins we should be called upon for some stout and strenuous pushing.

I speak of the Trough of Bowland glibly enough as a Lancashire man, and the name is familiar to wheel ramblers in this part of the country; but for the benefit of others I might say a word or two in description of its situation and character. To begin with, Lancashire is a county that embraces many phases of life and scenery—the manufacturing and industrial, the agricultural and rural, the mountain and moorland in the North, and the sea. To those who go upon wheels the county of the red rose abounds in variety and interest, and in spite of its reputation for poor roads, not altogether merited in my opinion, there are hundreds of miles of really respectable going. Part of our present journey, it is true, was by roads that even ultra-civility could not describe as of the best, but, then, they are rarely used by light or motor traffic.

The Trough of Bowland.

Well, the portion of country which lies on the northern borders of Lancashire and Yorkshire is of the moorland type, known as the Forest of Bowland, although there is now little enough forest about it, and is characterised by wild and rugged moorland and hill, through which the clear streams gurgle over their stony beds, flanked here and there by pine and fir and mountain ash, and fringed with the emerald verdure which crops out brightly in the sheltered valleys and on the slopes at the foot of the sequestered hills. The road which runs through the Trough is the hill road and short cut from Lancaster to Clitheroe. Making the circuit from Preston, our journey was not a long one (some fifty miles or so), but we allowed ourselves plenty of time to pause and enjoy the beautiful scenery through which we should pass.

The Trip through the Trough.

Setting out, therefore, in good time one morning, a friend and I (he mounted upon a light Fairy and I upon a heavy touring machine) proceeded merrily through Longridge and the old-world village of Chipping, and thence, negotiating some tricky corners and sudden rises, to Whitewell the beautiful. Here the hills began to rise in brave array in front, and the way we had to traverse was indicated by a deep cleft in their serrated ridges. The weather had begun to look somewhat gloomy, and a cold north wind blew down the valley in our faces. The little Fairy chattered away pleasantly by the side of its big, slowly throbbing companion, and, in spite of the gloomy look of the sky, our spirits were high and our hearts light as we swished along, chanting lively melodies. The road, which had been good so far, now commenced to deteriorate, and at Dunsop Bridge we entered upon a mountain road in earnest. We began to climb sudden acclivities and drop down steep pitches on a road that clung precariously in places to the steep hillsides.

In response to a call for a halt, my friend brought up suddenly, and, losing his balance, as gracefully and softly as circumstances would permit, he spread himself over the fallen machine, and together they made a picturesque recumbent group upon the soft turf by the roadside. The carburetter and inlet pipe were knocked awry, but we soon put matters to rights, and after feasting our eyes upon the beautiful scenes around us we proceeded on our way, not without some fears of the steep and rough road that lay before us up the redoubtable Trough. A slight blue haze now began to follow each of us as we fortified our engines with copious draughts of oil in preparation for the worst part of the climb. The road had deteriorated into a rough, boulder-strewn track, in which fact really lay the difficulties of the ascent. The heavy tourist was sprung fore and aft, but was unable to travel at the necessary speed to keep up power. The low-geared machine promised more favourably, and a bend in the road brought to our view the forbidding cleft in the hills, well named the Trough, which should tax our climbing capabilities.

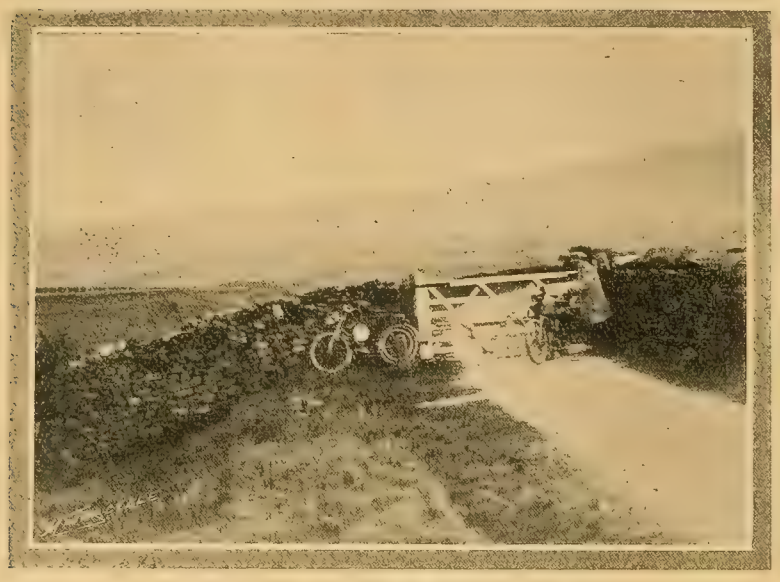
Near Dunsop Bridge.

Gradient 1 in 4.

The Fairy went first with a purring roar, and I

Through the Trough of Bowland.—

followed a couple of hundred yards or so in the rear. Although I was pretty busy keeping on the road, I noticed my companion throwing out a businesslike blue reek as he tackled the worst rise. I had no time to observe much, however, for my engine, slightly over-geared for this sort of country, was beginning to slow more than I liked. There was no pedalling gear on the machine, so I nursed the engine as well as I could, but



Across the Moors. One of the gates on the road.

the throbbing became weaker and slower, until at last I saw that if ballast were not thrown overboard there would be a full stop. I threw all the available ballast overboard, namely, myself, and commenced a lively quick-step alongside. It was without avail, and as the engine died away I looked up and saw my companion in similar straits. He had little weight to push, though, and soon won to the summit, whence he presently descended to help me push my 2 cwts. of refractory metal to the top. It was some consolation to look down the precipitous cleft and to think that, after all, it was exceptionally steep and exceptionally rough, but I felt vexed all the same that I had not a gear of five to one in place of my much higher one, or, better still, a variable gear. The contour book gives the hill as one in eight, so I should think it would be safe to say that there are portions nearer one in four.

We rested awhile after our labours at the top of the pass, regaling ourselves with sandwiches which we had brought with us, and taking copious drinks of the sweet water that bubbles over the clean stones in the mountain rivulets. Restarting presently, we descended the other side of the pass, which commences with only a moderate gradient for two miles. A brisk shower came on, and, not having recovered from the humiliation of the big-big push, I re-adjusted the carburetter, which I had purposely choked before setting out so that I should not run away from the lesser machine. W could see the road curling over the hills in front, an seeming hopelessly steep, but when the shower ha passed an improvement in our going seemed to tak place. We both tackled the steeps bravely, and mad light and fast work of the long ascent, given in th road book as one in ten—in reality, I am sure, muc steeper. We presently pulled up at a gate, of whic there are quite a number on this road. Sometimes the occur in awkward places, too, and one has t be very careful if a collision with one them is not desired. Besides, it is not alwa very easy to effect a start on the other sid The climb now became more gradual, an we felt to be getting to a tremendous heig on the bleak moors. Suddenly the Fairy engine went off at a startling roar. It w only the belt-fastener, and in a few minut we were again on our way, till we gained th highest point the roadway attains.

Magnificent View from a High Tow

Here from the "Jubilee" tower a magn ficent view of the country stretches below on all sides. Morecambe Bay is outlin like the coast line of a map. The billo mountains of the Lake District rise on t other side of the bay, and the familiar pea of the Langdales, Coniston Old Man, Bla Coombe, and many others which a La District lover might name confront us all their rugged majesty. South of the b Blackpool's tower and wheel are plain visible, and away round us the towerin forms of Ingleborough and Whernside and the w uplands of West Yorkshire contribute their quota the magnificence of the scene.

Getting astride our mounts once more, we made Lancaster, which could be seen from the tow Although only half a dozen miles away, those miles w pregnant with possibilities of trouble in the way steep hills and sudden curves and gates. To beg

The Jubilee Tower, from the top of which a manificent view is obtained.

Through the Trough of Bowland.—

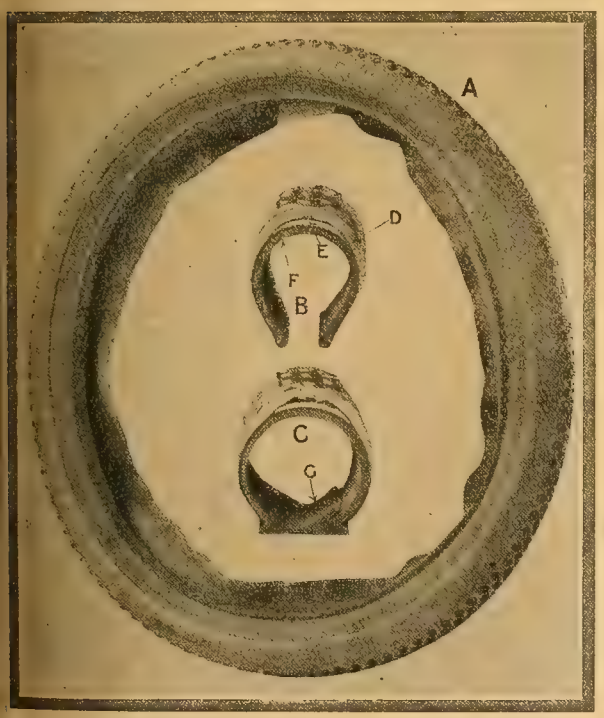
with, we dropped down a dangerous hill two miles in length, with an average gradient of one in ten. There is a right-angle curve halfway down, but although we were not aware of it we very fortunately had our machines well in hand. After negotiating the hill, a mile or two of comparatively level road gave us a little respite, until we reached the last "teaser." It was a tit-bit to finish up with, but our engines seemed to be pulling grandly—certainly mine was much better than it was in the Trough—and we took the bends in good style, and even started on a stiff gradient on the other side of a gate. That was the last hill, and we soon arrived in Lancaster, where we discovered that the small machine had been prodigally laying the dust with petrol from a leaky union. We remedied this, and after replenishing our petrol supplies to make up for the waste we worked our way through Lancaster's crowded and narrow streets, where Saturday market was being held, and out upon the good, broad, high road to Preston. It was a nice change to have a free and open seaboard, and we cantered briskly homewards, arriving in good time in the afternoon.

The trip was an arduous one, but we thoroughly enjoyed it. The light machine was, on the whole, more manageable in such a country, and more useful than the big machine, which latter ought to have been more suitably geared for the journey.

In conclusion, I would highly recommend the excursion to Lancashire and North-country men, but would say, have a variable gear, or, if a single gear, a reasonably low one—five or five and a half to one. There is a certain note of humour in the contour book's description of this road. Under heading "Objects of Interest," it is described as "dreary moorland road," which, in my opinon, is somewhat misleading. T. R.

Motor Cycle Tyres.

THOUGH they have been on the market for some years, the Michelin Tyre Co., Ltd., 49, Sussex Place, S.W., have not until recently pushed the sale of their motor cycle tyres. On motor cars they have given great satisfaction as regards durability and reliability, and are now used widely throughout the kingdom. The company's efforts have met with great success, which has resulted in their being honoured by receiving the Royal Warrant to supply Michelin tyres to His Majesty the King. In the manufacture of their tyres for motor cycles, the company have exercised the same care and skill as in the case of their car tyres. The motor cycle covers are strongly made, and have substantial treads. They are made either with beaded edges or with wired-on edges, and may be procured in various sizes, particulars of which will be sent on application to the firm.



The New Michelin Non-skid Tyre for Motor Cycles.

A. 26×2in. non-skid tyre.
B. Wired-on section—D, leather cover; E, strip to prevent studs reaching rubber; F, rubber cover.
C. Beaded edge section—G, flap to prevent "nipping" of tube.

The following remarks to be found in the 1908 Michelin Tyre Co.'s catalogue concerning the interchangeability of motor cycle outer covers will prove interesting. The 1⅝in. wired-on cover will fit a 1¾in. rim; the 1⅝in. beaded cover will do likewise; 2⅜in. and 2¼in. wired-on covers will fit 2in. rims; and 2¼in. beaded edge covers will fit 2in. rims. The 2⅜in. and 2½in. beaded edge covers require special rims. Michelin motor cycle covers are also made to fit Westwood rims. The Michelin butt-ended tube can be used with either wired-on or beaded edge covers.

A novel departure for 1908 is the Michelin-Semelle non-skid tyre for motor cycles. This is a reduced facsimile of the famous Michelin non-skid used with unparalleled success on motor cars for the last two years. The accompanying illustration clearly shows the construction of the cover. The studs, which are of hardened steel, project through a substantial leather tread vulcanised on to the cover, while behind the studs there is a thick leather strip, which effectually prevents the studs from penetrating to the inner tube. These non-skids are made with either wired-on or beaded edges, and it will be noticed that in the case of the latter a flap is provided to prevent the tube from being nipped.

The Centipede all-leather belt made by W. Pollin, of Spalding, has made a good name for itself both at home and abroad. It is a low-priced belt, capable of giving many hundreds of miles of satisfactory service. A

sample of a new pattern Simplex belt has reached us from the maker, and the drawing shows its construction. The introduction of the canvas core should make the belt still stronger and less liable to stretch and slip. The new Centipede belt is similar to the above, but stronger, having an extra strip of leather.

QUESTIONS & REPLIES

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Twin-cylinder for Passenger Work.

I have just purchased a 5-6 h.p. twin Antoine motor bicycle, Chater-Lea frame, which is geared 3½ to 1. Would you kindly let me know if I could fit a sidecar to this machine for my brother and I to use (our combined weights being twenty-two stones) on the road, say, from London to Exeter? Could you tell me about the number of miles per gallon I could expect with a Longuemare carburetter, No. 10 spray, on this combination?—M.C.

Yes, a sidecar can be fitted to the machine in question, and you could get about the country a good deal with only one gear of 4½ to 1, but a two-speed gear would be advisable if you do not wish to use the pedals on hills. The machine would not climb all the hills between London and Exeter unless a lower gear were fitted. The consumption would be about sixty miles to the gallon with sidecar.

Manipulation of Air and Throttle Levers.

Which of the following methods of driving would keep my 6 h.p. Riley engine the cooler? When I get going on level roads I close all extra air and then close throttle as much as possible without stopping engine. I then see if it will take any extra air and give it as much as it will take. Spark fully advanced. A friend of mine contends that my method of driving does not keep my engine as cool as it might do. He says if I opened the extra air about full and then throttled down as much as possible I should keep the engine cooler. His argument is (and it seems reasonable to me) that with the extra air fully open the suction on the jet is reduced, and that consequently I should get a weaker mixture than the way I drive, and that I should probably use less petrol.—BC 403.

We should say yours is the most effective method of driving, viz., to set the throttle at the speed at which you require to travel, and adjust the air to suit the quantity of gas admitted. If you open the extra air fully with throttle partly closed you will probably stop the engine. Again, with extra air fully open the throttle will require to be more open than actually necessary for a moderate speed, and engine will get hotter.

Gear for Tricar and Loose Bearing.

I have a 4½ h.p. tricar with Stevens engine, water-cooled, and it is geared 5 to 1. I find that it travels all right on level roads, but when I come to the slightest hill it slows down. Is this gear too high (passengers twenty stones), and if so, would you advise me to get a two-speed or variable gear? The big end of engine is very slack, and I have been trying to get at it, but I could not loosen the nut of flywheel, so I do not know whether it will require tightening or a new bush. What would you advise?—W.S.

The gear is about right for ordinary purposes, and the tricar should go up slight hills with comparative ease. The engine, without doubt, requires to be carefully overhauled, as there should be no play in the big end. A new bush will probably be necessary. Careful attention should be paid to the compression. Of course, no tricar is much use without a two-speed gear. We should, therefore, advise you to have one fitted, if possible. By reducing the gear still further the engine would most probably overheat.

Making the Engine Run at Slow Speeds.

The only fault I find with my Rex de Luxe twin is that it is too fast, and I cannot control the speed to much under 20 m.p.h., otherwise the engine stops. Do you think I could overcome this by fitting a smaller spray nozzle and choke tube? I do not know what number of nozzle I have in at present. Would this regulate the speed, say, to 20 m.p.h. or under? What would you recommend? I usually drive with the spark retarded one notch, the throttle almost closed, and the air full or half open.—G.H.A., N.B.

Try closing off the air supply still more when you close the throttle and attempt to make the machine run slowly. If this will not do you must fit a slightly smaller air adapter. Exactly what sized spray and choke tube are required can only be found out by experiment. It appears that the inlet valve springs of your engine are too strong. Procure two spare ones made of finer gauge wire or with a less number of coils in them, and you should be able to drive the machine regularly at ten miles per hour or even less.

Controlling Air Supply from Saddle.

The carburetter on my machine is a F.N. with a small hole on one side of spray chamber covered by a small cover moving radially on a set-screw. I am thinking of fitting a lever control to this. Would it be advantageous to make another inlet for air on the other side, so as to equalise the draught, and if so would the benefit be worth the trouble? In common with another enquirer in *The Motor Cycle*, I have had to solder up a small pinhole in the bottom of the spray chamber, thereby making a previously exceptionally bad starter, when cold, into an exceptionally easy starter, cold or warm.—E.W.C., Colchester.

Yes, an extra air inlet to the carburetter controlled from the saddle would undoubtedly be an advantage, and make driving more interesting. If you make an extra hole on the opposite side of the vaposising chamber, you would, of course, have to make arrangements to be able to close it. The latest patterns of the F.N. carburetter are fitted with an extra air inlet controlled from the saddle.

Difficulty in Starting and Running Slowly.

I have a 3½ h.p. Peugeot engine fitted to a Chater-Lea frame. The carburetter is a Longuemare. It takes me about five minutes to get the engine to fire, although there is a good spark at the plug. When once going I cannot throttle it down under eighteen miles per hour, which is not very safe on greasy roads. The carburetter is in good order, but I have to open throttle fully before engine will start. The contact breaker is clean, but I am renewing the platinum screw and blade, as they are worn. I may say the machine has always been known for its speed. A friend suggests a slow speed trembler coil. Do you advise this. J.H.C.

The symptoms entirely point to the air supply being too great. If you fit a smaller choke tube we think you will find the machine will run more slowly and start more easily. You must make sure that no air is being drawn into the engine owing to badly fitting nuts on the induction pipe, or owing to the throttle spindle being a very loose fit. This helps to make starting difficult. Do not use a trembler coil. It is not nearly so efficient as a plain coil.

THE LIVE AXLE.

WHAT IT MEANS.

THE LIVE BACK AXLE applied to a motor bicycle provides for the application of a starting handle on the axle, and permits of the same easy starting process as a car—distinct from the undignified and laborious method of pedalling. The ROC Live Axle system was initiated five years ago, and has since been incorporated with a perfect speed gear device under Patent No. 25054/06. Other makers are entitled to use the system under Roc license, **but the public are cautioned against infringements.** When ordering your new mount, specify **"live back axle."** It is the most important item in your specification. Most makers are already prepared to undertake this order, but in case of difficulty any competent agent can adapt the Roc Live Axle with Roc Clutch and Roc Speed Gear Appliance, or this company will undertake the conversion for you. The system means, of course, abolition of the pedal gear—a relic of the pedal bicycle. It enables one's machine to be controlled by foot levers precisely as a car. The appliance includes commodious footrests, and lends a new note of comfort to the rider.

If you already possess a serviceable mount, there is no longer the same need to change now this important improvement can be added. The inclusive price of the appliance and conversion is Ten Guineas. It is, of course, an integral part of the Roc machine marketed in two forms, viz.,

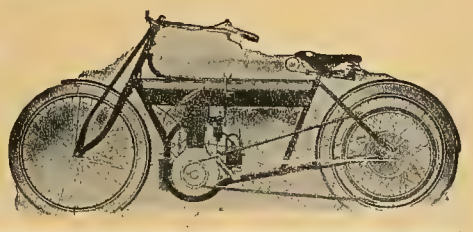
ROC, 4 h.p Single-cylinder Ball-bearing Engine .. .. .. 48 Guineas.
ROC, 5 h.p. Twin .. .. 55 „

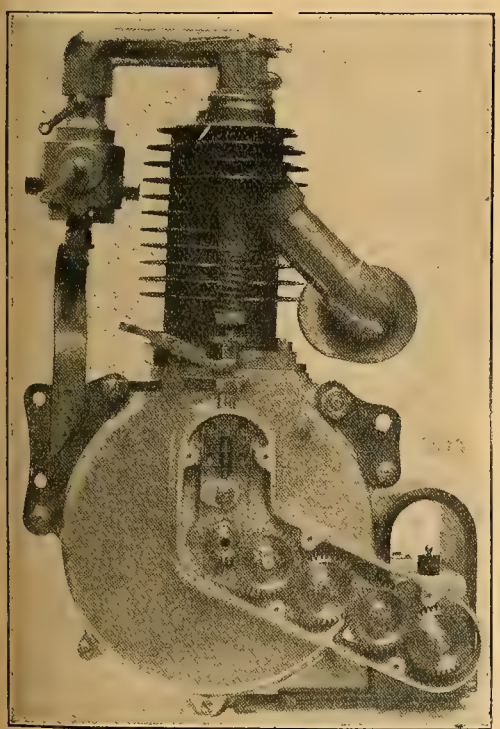
A. W. WALL, Ltd., ROC MOTOR CYCLE WORKS,

Aston Road and Dartmouth Street,
BIRMINGHAM.

LONDON AGENTS—
THE SERVICE Co., 292, High Holborn, W.C.

Complete 1908 Catalogue now ready.





THE L.M.C. 3½ H.P. ENGINE.
NOTE THE SENSIBLE EXHAUST PIPE.
(*"The Motor Cycle," Sept. 11th, 1907.*)

This is the L.M.C. Engine which

ALWAYS STARTS FIRST PUSH OF PEDAL.

Designed by Mr. W. J. LLOYD (late director of the Quadrant Cycle Co., Ltd.) Designer of the "ORIGINAL" QUADRANT ENGINES (Birmingham make). Mr. Lloyd's experience in Petrol Engine design and construction dates from the early introduction of motor cycling.

EXPERIENCE GUARANTEES EFFICIENCY & RELIABILITY.

A VISIT TO OUR WORKS will convince you that **THE L.M.C. is a PROVED SUCCESS.**

Write for leaflet, "Convincing Criticisms," post free. Illustrated list free on application.

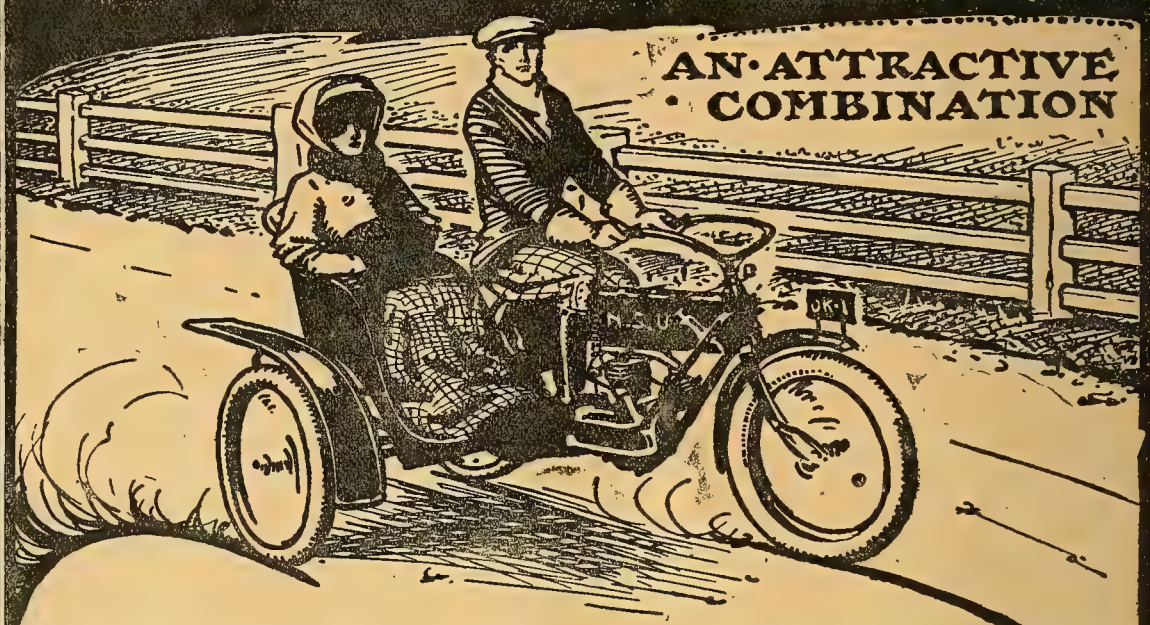
IMPORTANT TO RIDERS OF QUADRANTS (Birmingham make).—L.M.C. SPARES AND ENGINE REPLACEMENTS for these machines can be supplied from stock. PROMPT DESPATCH. LIST FREE. We have several excellent second-hand 3 h.p. and 3½ h.p. Quadrants (Birmingham make) for disposal. Re-plated and re-enamelled as new. Full particulars on application.

Agencies where machines may be seen, and all further information obtained:
Bristol & District—C. A. Hunter, 45, Park Street. Cardiff & District—R. Bevan, 31, Castle Street. Manchester & District—James Hall & Co. (Manchester), Ltd., 228, Stretford Road.

Makers: THE LLOYD MOTOR AND ENGINEERING CO.,
L.M.C. Works, 132, Monument Road, Birmingham.
Telegrams—"Obliging."

In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

N·S·U



N.S.U. 6 h.p. Twin Cylinder, N.S.U. Side-car Attachment,

—the reliability of the former ensuring the safety of the latter. The N.S.U. Twin-cylinder is admirably suited to sidecar and forecar attachments. It is stoutly built, particular attention having been given to secure a strong rigid frame. Considerable thought, too, has been devoted to arrange the seat in such a manner as will enable the average rider to enjoy freedom of movement and comfort, and to converse in just the ordinary tone of conversation with companion. A point in favour of the N.S.U. attachment is that it can be adapted to any type of machine.

TO N.S.U. OWNERS. We have a repair department especially equipped and staffed to deal promptly and efficiently with all requirements. If your machine requires overhauling send it now. Spare parts can be supplied per return.

The N.S.U. Two-speed Gear can be easily fitted by just removing the ordinary pulley.

1908 Catalogue free on request.

Send for full particulars to—

N.S.U. MOTOR CO., LTD.,

78, Charlotte Street, LONDON, W.

A.J.W.

Gummed Up Piston Rings.

(1.) I have a 4½ h.p. Stevens motor bicycle, but find when trying to start that the back wheel sticks and will not go round. Have had belt off, and find that it is not the fault of the road wheel. Of course, I use the exhaust lifter. What do you think is the cause? Do you think the piston sticks? (2.) How can I find the gear of a motor cycle? (3.) Do you know any method of starting my engine on the stand, it being pedalless?—AUTO, Staffordshire.

(1.) See that the exhaust valve is lifting properly, and inject paraffin through the small tap on the top of the cylinder before starting. If there is no tap you had better have one fitted, or you will have to remove the sparking plug every time you want to inject paraffin. (2.) You find the ratio of gear between engine and road wheel by revolving the back wheel and counting how many revolutions the engine pulley makes to one revolution of the road wheel. (3.) There is no safe method of starting the engine on the stand without pedals, but on a well tuned up machine it can be done by smartly pulling up the back wheel over compression. Be very careful when attempting this or you might cut your hand or arm on the mudguard; it is a most dangerous practice. Why not have a free engine like the Roc, with a starting handle on back axle?

Proposed Alteration of Contact Breaker.

I have a 5 h.p. Riley tricar which has always given satisfaction except for one thing. The contact breaker is make and break, and the oil from crankcase works out on to it and accumulates on the platinum points, causing misfires, the temporary cure being to dismount and clean the oil away and re-adjust platinum points. To avoid this I am thinking of changing contact breaker to wipe. This, of course, would avoid need for trimming up platinums, but should I get good results from the change, or can you suggest any disadvantage likely to accrue from fitting wipe contact, other than the usual wear which takes place on fibre and ring, and would it be at all difficult? The coil is a Fuller Syntonic. I suppose no other alteration is required than fitting the wipe contact to half-time shaft?—ED 84.

You must bear in mind that a make and break contact breaker is more efficient than a wipe contact and more economical. The average contact breaker, if a good coil is supplied, will stand a good deal of oil, but when pitting ensues, added to dirty oil, misfiring occurs. Probably if you fit iridium points to contact maker and coil it will cure the trouble altogether. It is not the oil that causes the misfiring so much as pitting of soft platinum. We have often run a make and break contact breaker in a very oily condition if the points have been rather firmly adjusted. Of course, you can cure the leakage of oil by rebushing, or fitting a felt washer. If you fit a wipe contact cam must be changed.

A Novice's Interesting Queries.

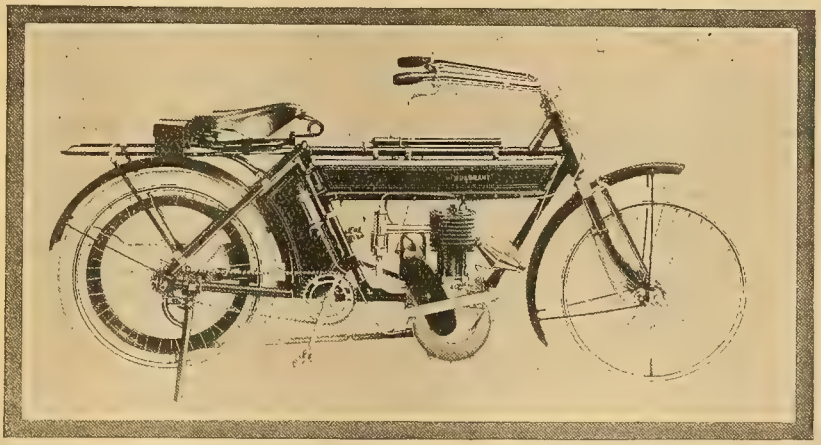
I have a 2¾ h.p. Kerry, 76 by 85 mm., plain coil, make and break, F.N. carburetter. When I advance spark lever half-way the machine goes well, but if I advance it fully the speed does not increase. The machine goes very well, but not fast enough. It takes all the air after starting, at slow or fast speeds. Do you think if I fitted a B. and B. or Longuemare carburetter I should get better results? The platinum points are properly adjusted as per your advice to other readers. Compression is perfect and carburetter clean, also batteries all right. I can climb a hill of 1 in 9 with a 5½ to 1 gear, but if I have a 4¾ to 1 gear I have to pedal. Kindly explain. Do you think that 1in. leather belt is too wide for a 2¾ h.p. engine? Another mystery is if I give a pumpful of oil every five miles I never notice smoke coming out of the silencer. Please explain why. My petrol consumption is about eighty to ninety-five miles per gallon.—C.H.E., Ruabon.

Probably the spark is advanced to its limit when the lever is half-way forward. You will improve matters by fitting a slightly larger choke tube, or else you could increase the size of the extra air inlet so that the machine will take the full amount of air when running at full speed. It is unnecessary to fit another carburetter. The performances as regards the two gears are about right. The lower the gear the slower the machine on the level, but steeper hills can be climbed. The engine does not smoke probably because the oil will stand a high temperature, and there is room in the crankcase for it; if the space between flywheels and crankcase is small the oil soon gets past the rings, as there is nowhere else for it to go, and when it arrives in the combustion head the heat of the explosions vaporises it. Some engines smoke immediately they are over-oiled, whereas others run better with a good supply of oil and do not smoke.

Output of 2¾ h.p. Engine.

(1.) Under ordinary conditions should a 2¾ h.p. Minerva take a rider of eleven stones up all hills? (2.) Does reboring increase the h.p. of a motor, and would you advise this being done, or does it weaken the sides of the cylinder too much? (3.) What would it cost, roughly, to fit a trembler coil and wipe contact in place of a plain and make and break? Would the result compensate for the outlay? (4.) Would iridium points on make and break last longer or require less frequent adjusting than platinum, and would they give better results?—J.G.B., Cardiff.

(1.) A 2¾ h.p. machine with an eleven stone rider should climb most hills without difficulty, but not all, unless the gear is sufficiently low. (2.) Reboring naturally increases the horse-power as it increases the diameter of the cylinder. Whether or not it will weaken the cylinder walls too much is a matter for the engineers who undertake the job to decide. Very few motor cycle cylinders are thick enough to allow for reboring, but compression may be improved by grinding out cylinder and fitting new rings. (3.) We do not quote prices. No, we should say it is not worth while to have a trembler coil fitted, and you would lose heavily in efficiency, though probably with it starting would be rather easier. (4.) Yes, iridium points would last longer, require less cleaning and adjustment, and give better results provided the coil has an efficient condenser.



The new pattern Quadrant is undoubtedly an improvement over its predecessors. The engine has a m.o.i.v., handle-bar control is fitted, longer handle-bars, a lower frame, foot plates, a round tubular carrier, and Price's stand. This new model is also neater, and has a symmetrical appearance.

¶ *"THE AUTOCAR," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. Issued weekly.*

OCCASIONAL COMMENTS

By "IXION."

The Tyre Spoon Brake.

An interesting discussion in an American contemporary recalls the days when pedal cycles were fitted with a front brake consisting of a metal spoon, which was worked into pressure on the tyre itself by the usual lever. This brake is a distinctly powerful one, and whatever its defects, it does not wear the tyre, as was strikingly illustrated by a photograph published in *The Motor Cycle* last year. A stone stuck between the mudguard and tyre of a motor cycle, and the rider proceeded twenty miles with the stone rubbing on his tyre all the way; yet at the finish it was the stone that was nearly worn through, the tyre evincing no damage whatever. The explanation is the difference in the size of the two surfaces under friction, the brake spoon being perhaps 2in. long and the tread of a 28in. tyre over 7ft. The reason I mention this form of brake is that several times of late I have been consulted about an additional emergency brake for passenger combinations—both sidecars and tricars. The regular brakes have proved unequal to great stresses, and there is no room to fit another drum and band, while perhaps the contour of the tyre rim does not lend itself to a horseshoe brake. Under these circumstances I certainly ought to have suggested a tyre spoon brake, which is very powerful and very simply and inexpensively rigged up at home by any clever amateur. My omission is the greater because I have owned a small voiturette and an Eadie quad, each of which had a pair of these brakes. There is always the risk of a punctured tyre, of course, but it would be a rare case when tyre and brake collapsed together. I would a good deal rather rely on one of these brakes than on any other motor cycle brake of modern days, excepting only the belt rim shoe, and that, unfortunately, we cannot have in passenger work when we use a chain drive.

A Lubrication Point.

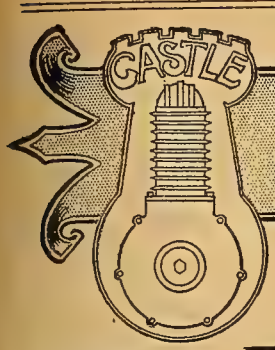
Some riders appear to find a marvellous difference in the running of their engines according to the brand of lubricant that is employed, while others find their engines so entirely indifferent to the consistency of oils that they are frankly incredulous about the troubles of their less fortunate brethren. Wherever I have found an engine supremely sensitive to the quality of its lubricant, it has been an engine in which there was only a very limited clearance between the flywheels and the crankcase. Of late most makers have slightly increased this clearance, and this disturbing sensitiveness to brands of lubricant will, I fancy, practically disappear during 1908. Two instances have come under my notice this week. One is a letter from a friend, who says his 1908 mount will accept any lubricant, whereas the 1907 edition of the same make always sulked unless fed with a particular oil. A second is the experience of a maker, who had an engine returned to him because it would not climb hills. He tried a fresh oil with it, and it behaved admirably; and to cure this tendency he is enlarging the flywheel clearance. Where this sensitiveness exists, it is sometimes possible to cure it by reducing the web at the top of the crank case.

An Extraordinary Experience.

A well-known athlete underwent an extraordinary experience on one of the early rides of his novitiate. I wonder if any rider can parallel it? His single-cylinder vertical engine had its gudgeon pin secured by the set screw system of odious memory. One of these set screws came adrift after the fashion of the wee beasties. As some of us know, this usually means a wrecked engine. But perhaps because the aforesaid athlete used his motor cycle for business purposes and not for sinful scorching his fate was very different. The errant set screw emerged from the engine *viâ* a hole it knocked for itself through the wall of the cylinder; but, the owner's lucky star being in the ascendant, this hole was at the very bottom of the piston's stroke. Consequently the engine continued to run, and with increased power, owing to the freer exhaust. The rider puffed blithely to his journey's end, somewhat bespattered with oil, and creating no small barking. He still rides with the same cylinder, albeit with a plate clamped around the auxiliary exhaust hole. Some men have all the luck. But why, in the name of all that is wonderful, did that screw emerge sideways through the cylinder? One would have said the piston could only jerk it against the glass-smooth cylinder wall at a very acute angle, and, if so, how did it make its way clean through? Truth is again stranger than fiction. I should never have dared to incorporate such an idea in one of my motor cycling yarns.

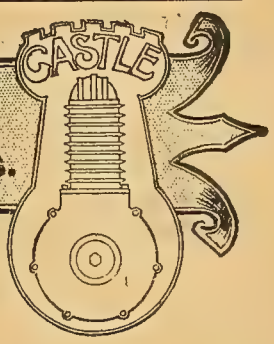
Magneto Switches.

A rider enquires why accumulator switches and magneto switches work in directly opposite ways, the accumulator switch opening up a gap in a previously complete circuit, and the magneto switch bridging a gap already existent. The accumulator switch is a "cut out" switch; it stops the firing by interrupting the primary circuit, and so preventing the electricity stored in the accumulator from circulating. Hence this switch opens up a gap. With the magneto, on the contrary, we have not got to deal with stored electricity at all, but with a current that is being constantly generated, and not only generated, but simultaneously impelled over a circuit; if we broke this circuit by a cut-out or interrupter switch, the current would continue to accumulate at and behind the point of rupture, and would burst a path through some part of the insulation. Consequently, instead of breaking the circuit, we open up a new and shorter circuit which guides the curent away from the sparking plug, and so stops the firing without damaging the magneto. Consequently, a magneto switch is nothing more or less than deliberately procuring a short circuit.

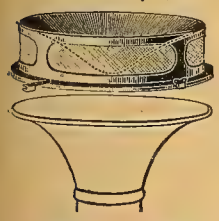


Always ask your Motor Agent

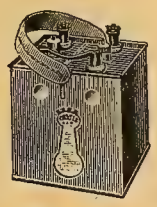
for U.M.I. and "Castle" Goods.



CASTLE GUARD for Horns, 4/6.



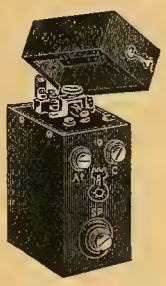
Use good things on your motor cycle. It saves money and increases pleasure.



Castle Accumulators

THE EVER RELIABLE, from 12/6.

The "G" Petrol Filler, FOR SHELL CANS.



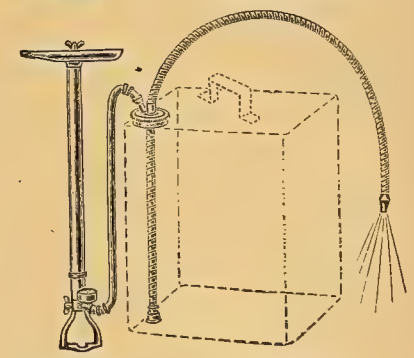
Castle Induction Coils

decrease consumption and increase power.

Non-trembler .. 15/6

High-speed trembler 31/6

WRITE FOR 1908 LIST.



7/6.

With it any tank filled with ease.

Eisemann Magneto Plug, 5/-.

LM, 2/-.

UNITED MOTOR INDUSTRIES, LIMITED,

45 & 46, Poland Street, London, W.

and Sherbourne Works, Coventry.

Watawata

POWER POSSIBILITIES

The actual limitations of your machine's power are never touched unless it is economised and rightly directed. That is what the Watawata is for—to show you just what can be done if all power wastage be checked.

There's no question of slipping or stretching about the Watawata—it preserves its tenacity of grip under all conditions. Motor cyclists everywhere praise it and we cannot recall a single instance of dissatisfaction.

For full particulars write:

DEPT. B. Messrs. O. & W. ORMEROD, LTD., ROCHDALE.

LONDON: W. B. BROOKE, 81B, Mansion House Chambers, E.C.

"JUST ARRIVED."

To All Motor Cyclists

who have been waiting the arrival of a perfect "all rubber" non-skid Motor Cycle Tyre, this latest arrival from the PETER UNION FACTORY will appeal with peculiar interest. Some special points to note—the Basket pattern tread, its extension over the walls of the cover, the large amount of rubber which ensures great resiliency without loss of speed, and offers sure resistance to punctures.

Write for particulars to—**PETER UNION TYRE CO., LTD., 6, Upper St. Martin's Lane, London, W.C.**

Sole Agents for South Africa—SHIMWELL BROS., Caroline Street, Birmingham. Sole Agents for Scotland—MESSRS. RIGNALL-HOLDER, LTD., 18, Swinton Row, Edinburgh. Sole Agents for Manchester and District—THE MANCHESTER AUTO-CYCLE CO., LTD., 65, Great Jackson Street, Manchester. New York Agency—MR. E. KITCHENER, 206, West 76th Street, New York City, U.S.A.

In answering this advertisement it is desirable that you mention "The Motor Cycle."

Some Interesting Accessories.

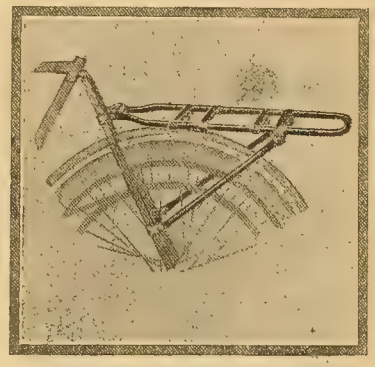
SINCE the early introduction of the motor cycle the firm of Lycett's Rawido Belt Co., Ltd., Bromley Street, Birmingham, has always catered for riders' wants, and can be relied upon to turn out articles of practical value, the principal, Mr. E. Lycett, being an enthusiastic motor cyclist himself.

The Lightning stand, new pattern, for attach ng to chain stays.

[Lycett's rubber and canvas belt with transverse grooves top and bottom.

The latest introductions of this firm are a new pattern Lightning stand, which is attached to the chain stays to facilitate the removal of the rear wheel while the machine is jacked up. The other well-known features of the Lightning stand are retained. A round tubular carrier is another new accessory illustrated in this article.

The remaining illustration is that of a new registered pattern of rubber and canvas motor cycle belt. The transverse grooves, which are moulded in the rubber during the process of manufacture, unlike other patterns, are moulded both on the top and underneath the belt, but, as will be observed from the illustration, the under grooves are altogether finer than those which are provided at the top. The double grooves should tend towards greater flexibility. An important point in connection with this belt, but not shown, is the Lycett patent fastener. Most readers know the Lycett fastener for leather belts, and how quickly it can be attached or detached. The same system has been adopted for the new rubber belt. It is fitted with metal eyelets during the process of manufacture, without injury to the rubber or canvas, and as a rubber belt does not stretch as rapidly as a leather one, it has been possible to reduce the number of holes at each end.



The tubular carrier for motor-cycles.

Experiences with a Twin-cylinder Lightweight.

OUR first riding experience with the lightweight twin-cylinder Moto-Rêve was on the day of the quarterly trials last January. On that occasion the roads were atrociously bad. For days previously alternate frost and thaw had rendered the surface a mass of greasy ruts, intermingled with slush and new metal, and we cannot recollect having seen roads in a worse condition. We rode the machine about sixty-five miles that day, and our first impression was distinctly good. There was an entire absence of side-slip or unsteadiness, and the Druid spring fork absorbed all vibration. The handle-bar control is well nigh perfect. On the left side of the bar are two small levers—one fixed horizontally controlling the throttle, the other underneath the handle grip operating the double valve lifter. Once the extra air lever is set the carburetter works quite automatically, although it is an advantage, we find, to open the extra air hole on the carburetter if a long hill has to be climbed with the throttle full open. Since our first ride in January the Moto-Rêve has been ridden a further 250 miles without the slightest adjustment being required to the engine or magneto—in fact, we have not found it necessary to place a spanner on those parts. The round twisted belt has given very little trouble, the record up to date being one broken belt fastener. On a long ride, if there is any sign of slipping, the belt can be instantly tightened by means of the jockey pulley, but there arrives a time—usually at the end of about 100 miles—when the belt requires shortening. This is best done by cutting a piece out, as it is inadvisable to shorten the belt by twisting the coils closer together. In a few weeks the company will be in a position to supply machines with a direct drive and V belt in place of the round belt and jockey pulley. Under favourable conditions the machine will average a little over twenty miles an hour on average roads. It climbs hills splendidly considering its power, and recently successfully negotiated a steep hill outside Stratford-on-Avon on the road to Bidford, locally known as Bardon Hill. With about thirteen stones in the saddle it climbed a little over three parts of the way without pedal assistance, and with a few light strokes of the pedals the remainder was ascended practically without exertion. Regular readers of *The Motor Cycle* will remember that we were the first to call attention to this miniature twin-cylinder engine, a description and illustration being published on May 22nd, 1907. We are continuing our experiments, but in the meantime we know readers will be interested to hear our experiences with this new pattern lightweight. It is a most pleasant little machine to ride, is very silent, gives no trouble, and is just the machine for those riders who desire a lightweight with some reserve power. The engine and magneto are beautifully made—in fact, this portion of the machine is a marvellous example of ingenuity and compactness. If the machine continues to give the same satisfaction as it has done up to the present, we shall have no hesitation in recommending it as quite the best of the lightweight patterns that we have yet had the opportunity of riding. Riders of about ten stones would find the machine a far better hill-climber than we have done. The makers are the Moto-Rêve Co., 138, Gray's Inn Road, W.C.

Expenses in the End-to-end.

By B. H. DAVIES.

THE editor has asked me to give intending competitors some idea of their probable outlay in the End-to-end. I have no doubt the R.A.C. Journal will publish a theoretical balance sheet, as I believe it did in 1906, but I must warn any rider whose pocket will only run to the minimum that unexpected expenses are often encountered on a prolonged motor cycle ride. I myself considerably exceeded my estimates, owing to various causes. All I can do in this article is to indicate the minimum, and riders can then judge for themselves whether they care to face the chance of exceeding it. The point is that when a rider has got a certain distance he will be intent on finishing at any cost, and though some accident may necessitate professional help in the way of repairs, which disqualifies for a gold medal, he would nevertheless pay for it rather than not finish the course.

As regards the journeys to the start and from the finish. Penzance can be reached in a long day from London on a motor cycle, but if time is to be allowed for overhauling it afterwards, as is only prudent, the cost of meals and beds will exceed the railway fare. The same is true of the return journey from Wick. The A.C.U. may arrange cheap tickets to Penzance, but the saving will be small.

The A.C.U. makes special terms at all the hotels, averaging 8s. 6d. for supper, bed, breakfast, and attendance, say 9s. with tips at the lowest. They also arrange for a midday lunch at a cost of about half a crown; cheaper lunches may be had, but riding creates an enormous appetite, and as there is often no chance of a proper afternoon meal, it will be found false economy to go to a cheaper house for lunch. There is also the supreme advantage that there is no tiresome waiting for the official lunch.

My estimate is liable to be exceeded by means of tyre replacements, refreshments between meals, and sundries. It must also be remembered that a rather costly kit of spares, in which extra inner tubes are the largest item, is required before starting; that the rear outer cover is likely to exhaust about half its life; that clothing, goggles, horn, lamps, etc., are quite likely to need some expenditure after the run; and that several small spares in the way of plugs, belts, etc., are fairly certain to be used up.

ESTIMATE.

Entry fee, £2 2s. (members of A.C.U., private owners); add subscription and entrance fee—town members £1 6s., country ditto 15s. 6d. ...	£2 17 6 to	£3 8	0
Fare, London to Penzance		1 5	3
Motor bicycle, owner accompanying, owner's risk		9	0
Fare, Wick to London		2 13	3
Motor bicycle, owner accompanying, owner's risk		12	0
Hotels—Eight beds, suppers, and breakfasts, at 9s. per night		3 12	0
Eight lunches at 2s. 6d.		1 0	0
Petrol—900 miles, 100 miles per gallon, at 1s. 4d. per gallon		12	0
Oil—say one gallon at 4s.		4	0
Minimum expense	£13 5 0 to	£13 15	6

RIDING HINTS.

THE difference in the amount of attention bestowed by motor cyclists on their machines is amusing. One man likes to put his machine away at a week end and take it out the next without having touched it in any way—in fact, rides it until it won't go any longer—and the other, usually the most enthusiastic rider, is never happy unless tinkering and trying to improve his machine. Fortunately, present day motor bicycles need very scant attention, and, although it is not wise to wait until one gets on the road to find something needs adjusting, we do not encourage riders to do too much dismantling "to see how the wheels go round." A certain amount of periodical attention to a motor cycle is desirable and necessary, and does much to prolong its life, and a few minutes spent in looking over the machine before starting out ensure an enjoyable day's run. We have recently received some very practical hints from a Partick motor cyclist who has had a 3 h.p. Triumph machine two years, during which time he has ridden it well over 6,000 miles, and as much as 208 miles in a day. He assures us that, although his machine has had to carry fourteen stones regularly, it is as good now as the day he got it except for the tyres, and it has never been in a repairer's hands.

In addition to the usual tool bag, he carries a spare one full of tools and spare parts. Many of his friends laugh at him, but are nevertheless very glad to meet him on the road if they are in trouble.

Some Useful Tips.

Here are a few interesting particulars of the little alterations made and attention paid to the machine. He first bent the levers in towards the centre line, as they previously stuck straight up and caught on his trousers. They were set in exactly 1in. Next the steel split pins were all taken out and replaced with copper ones. The rubber tube connecting the oil pipe to the crank case was made a screw coupling, which entirely prevented any leakage. At the ends of the footrests side plates were fitted, similar to those on a pedal, to prevent the feet from slipping sideways. Whenever he returns after a ride over muddy roads he puts little oilskin covers made out of linen cloth soaked in linseed oil and dried, similar to a seaman's oilskin coat, over the carburetter and magneto, and throws buckets of warm water all over the machine, or uses a hose till all dirt is off, then dries down with white clean waste. [We think the oilskin covers should be extended to the wheel bearings, otherwise there is great risk of washing grit into the bearings.—ED.] Afterwards he paints all over the machine excepting the saddle, toolbag, and tyres with paraffin. A special paint pot and sash tool are kept ready for this work. Once every fortnight, whether the machine is used or not, the lamp, horn, and all silver plated parts are "painted" with paraffin, and there is not one single spot of rust on any part. A motor cycle naturally commands a higher price second-hand after careful usage.

THE MOST COMFORTABLE MOTOR CYCLE in the WORLD.

The reasons why the average motor cycle is uncomfortable are numerous; three occur to one's mind immediately:

1. The excessive weight, which makes it difficult—at times dangerous—to handle
2. The overlarge engine, which develops its power too vigorously—especially when working slowly
3. The difficulty of control when riding through towns, round blind corners, in winding lanes, etc.

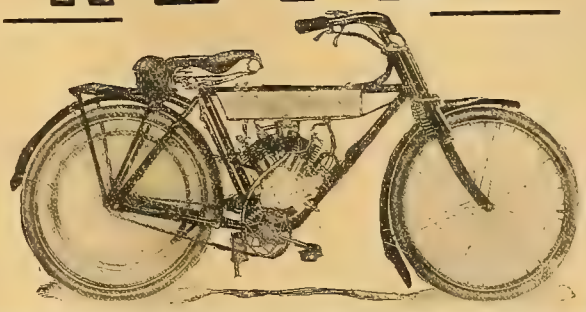
The MOTO-REVE removes all th se objections.

1. It scales under 80lbs
2. Its 2 h.p. two-cylinder engine runs with a gentle purr, yet is powerful enough to carry the rider up any hill.
3. Its handle-bar control enables the rider to regulate his pace by a touch of the finger.

Write a card for list C and full particulars,

THE MOTO-REVE CO.,
138, Gray's Inn Rd., London, W.C.
LIVERPOOL: Central Hall Buildings.

MOTO-REVE.



S. & H.

Lest you forget-

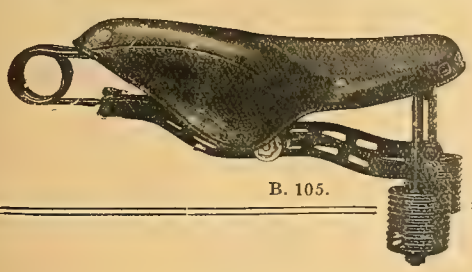
make a note NOW—while you read this—to give fullest consideration to the merits of BROOKS saddles and seats, with a view to having one or the other fitted to your motor cycle this season. Write to-day for one of

BROOKS "Saddle Manuals"

and read all about what we are providing for your needs as a Motor Cyclist. A critical investigation will reveal the solid advantages possessed by Brooks Specialities—benefits far in advance of anything else on the market.

Address Dept. 45.

J. B. BROOKS & Co., Ld., The Saddle Specialists, **Birmingham.**



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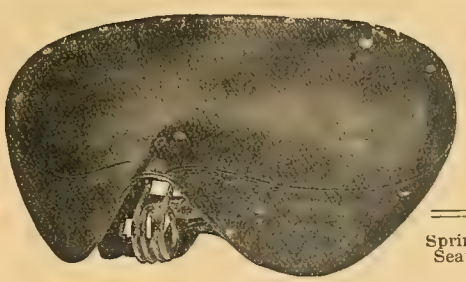


Spring Seat.

What is the Best Title for This?

A Novel Competition for Photographers.

£15 IN PRIZES.

In this week's "**Photography**" (dated March 17th) is a coupon, to be filled in with the best title for this picture and sent in, with a Postal Order for 6d., to the Editor. The whole of the money so obtained will be distributed in prizes, and in this (the first of the series) the Publishers guarantee a minimum of **£15** as the prize money. All entries have to be in by March 24.

FIRST PRIZE = = = = £5.

The issue of "**Photography**," dated March 17th, is on sale this week at all Newsagents and Bookstalls, price 1d., or will be sent post free for 1½d. on application to the Publishers—Iliffe and Sons, Ltd., 20, Tudor Street, London, E.C.

CURRENT CHAT

Special Feature

THE BALANCING OF PETROL ENGINES :
INTERESTING CORRESPONDENCE.

International Auto Cycle Tourist Trophy Race.

Mr. M. J. Schulte offered to present a silver cup to the winner of the above race, and one gold medal each to the second and third in the single-cylinder class. The A.C.U. Committee thanked Mr. Schulte for his kind offer, which they have been pleased to accept.

Ripley Roadmenders' Dinners.

The second of the dinners and entertainments to roadmenders employed on the Ripley Road took place on Saturday last, at the White Lion Hotel, Cobham, when about thirty-six men were entertained. The A.C.U. secretary will be pleased to receive further contributions to the dinner fund.

The Auto Cycle Union.

At the end of last year thirty-three clubs were affiliated to the Auto Cycle Union, representing a total membership of about 1,900. The A.C.U. Revenue account for the year ending December 31st, 1907, shows a turnover of £745 17s. 6d., with a small deficit balance of £13 12s. 5d.

A Gymkhana in Germany.

Prince Louis Ferdinand of Bavaria has accepted the honorary presidency of a gymkhana which is to be arranged co-jointly by the Bavarian Motor Club and the German Motor Cycle Association for cars and motor cycles on July 28th, at Munich. Prizes are valued at £75, amongst the donors being His Royal Highness Prince Ferdinand of Bourbon, the Duke of Calabria, the Munich Corporation, and the organising club and association.

Private Hill-climbing Trials.

Last week-end we were invited by Mr. M. J. Schulte to witness some trials on Edge Hills with a number of 3½ h.p. motor bicycles just out of the Triumph shops—their test climb, in fact. In all there were ten 1908 model machines, and it says much for the accuracy of finish and the systematic production of the machines under mention that all successfully scaled a noted Warwickshire hill which has a gradient of 1 in 6 at the steepest part. Added interest was infused into the trial by the unexpected appearance of those two rival and enthusiastic amateurs, O. L. Bickford and W. G. McMinnies, of Oxford. They did not hesitate to try the paces of their respective machines —a Triumph and a Vindec against one another, but in two trials honours were even. Both machines were in excellent tune, and climbed the hill without slackening speed.

No Revenue Tax in Ireland.

It is not generally known that there is no revenue tax on motor cycles or motor cars in Ireland.

Police Trap at Edgware.

We have received information of a trap working in various positions at Edgware, both day and night, and sometimes as late as midnight.

The Number of Motor Cycles in Germany.

From the annual automobile census just taken by the German authorities for the whole Empire we note that at the beginning of January there were 19,573 motor cycles in Germany, or 3,800 more than twelve months previously.

Dangerous Dogs.

It is a matter of general interest to motor cyclists that a cyclist residing in Staines has been awarded £150 for damages sustained through a large Airedale terrier rushing at him and knocking him over. There is no doubt that some dog owners do not take the trouble to prevent their pets rushing after road vehicles, and a lesson or two such as the above will doubtless affect a speedy alteration.

Brooklands First Open Motor Cycle Race.

Motor cyclists will welcome the news that the first Brooklands motor cycle races, consisting of a match or private sweepstakes and other events, are included in the B.A.R.C. Easter programme. The dates of the Easter meeting are Saturday, April 18th, and Monday, April 20th. We have, as our readers are aware, frequently urged the encouragement of motor cycle racing on the Brooklands Track, and we look forward to a well filled entry list and some good sport. We shall publish the conditions in a future issue.

Motor Taxation.

The Sheffield and Hallamshire Motor Cycle Club has sent us a copy of a letter which it has addressed to five members of Parliament who represent the electors of Sheffield and district. This letter is signed by the committee of the club, and asks the Parliamentary representatives for their valued help in watching future legislation, especially when the forthcoming Budget and the new Motor Car Act are introduced. The letter points out that motor cyclists have been very unfairly dealt with, and have been actually taxed higher in proportion than car owners. In proof of this the average value of a car weighing under one ton is given as £350, and that of a motor cycle as £15. On this basis the autocarist pays 2¼d. in the £ taxation, while the motor cyclist pays 1s. 8d. in the £, or eight times more per cent. than the autocarist. Other motor cycle clubs might reasonably follow the example of the Sheffield and Hallamshire M.C.C., and so prevent further injustice to motor cyclists, who are threatened with additional taxation on the recommendation of the Royal Commission. Club secretaries can have a copy of the above letter on application to the Editor of *The Motor Cycle*.

Damages for a Guards' Officer.

Lieut. F. R. Harford, of the Scots Guards, was awarded £500 damages in the Law Courts last Thursday against Mrs. Alice Gray Hubbard. He was riding a motor bicycle at Aldershot when he was knocked down by Mrs. Hubbard's motor car, and so badly injured that an operation was performed, and his left leg is now shorter than the other. In summing up Mr. Justice Darling said Lieut. Harford was an officer in what remained of the Scots Guards, and it was necessary that no harm should come to him, because he gathered that officers were exceedingly scarce. It might be expedient to reduce the Scots Guards, but it was not expedient to reduce the officers unevenly.—*Daily Mail.*

The Royal A.C. Annual General Meeting and Annual Dinner.

On the afternoon of the 12th inst. the annual general meeting of the Royal Automobile Club was held in the old War Office buildings, on the site of which it is proposed to erect the club's new premises. The report of the year 1907 was an interesting, lengthy, and momentous one, of which a considerable portion was devoted to the doings of its vigorous offspring, the Auto Cycle Union. Mention was also made by the chairman, Mr. C. D. Rose, M.P., of the dissolution between the R.A.C. and the Motor Union. The same evening, at 8 o'clock, the R.A.C.'s eleventh annual dinner was held at the Covent Garden Theatre. The function was one well worthy of the august body which was responsible for its organisation. Amongst the guests were Prince Alexander of Teck, the Chinese Ambassador, the Greek Minister, the Swedish Minister, Sir Edward Henry, and numerous other notabilities. After the dinner a splendid entertainment was provided, which included performances by the most famous of the shining lights of the variety stage.

Motor Cycle Races at the Stadium.

A permit has been granted to the proprietors of *Cycling* to hold motor cycle races at their meeting to be held at the Stadium, Shepherd's Bush, on Saturday, May 9th.

The Shepherd's Bush Track.

Whether or not the racing track at the Stadium is the fastest and most suitable one in London for motor cycle racing, it is interesting to note that the two most important annual race meetings, the Auto Cycle Union and the Essex Motor Club, are down for decision at the Shepherd's Bush track. A well-known racer does not consider it faster than Canning Town, and it will be interesting to note the speeds accomplished at the first meeting on May 9th.

The Life of a Motor Cycle Engine.

Mr. R. C. Clincker, of Clifton-on-Dunsmore, near Rugby, has forwarded for our inspection some parts of a 2¾ h.p. genuine De Dion engine which has run 18,000 miles, fitted most of the time to a Trimo attachment with Phœnix two-speed gear. The parts sent were the gudgeon pin, crank pin, two connecting rod bushes, and a piston ring. As Mr. Clincker says, the condition of the parts is a striking testimony to the first-class material and workmanship put into these engines. We have seen the same parts in some other makes of engines entirely worn out in less than half the distance. It would be interesting to know whether the long life of the old pattern De Dion engines is due entirely to superiority of material and workmanship, or to the fact that these engines had rather a low compression, and were usually fitted to machines having a gear ratio much lower than those employed in the majority of cases nowadays.

The Economical Motor Bicycle.

A Fifeshire reader tells us in a query respecting a new machine that during the whole of 1907 the total expenses with his motor bicycle—a 2 h.p. Quadrant—amounted to only £6. He cannot say how far he travelled in that period, but assures us that he enjoyed rides most week-ends.

Annual General Meeting of the A.C.U. Council.

Delegates attending the annual general meeting of the A.C.U. council on Saturday next are hereby reminded that the venue has been altered to the Imperial Restaurant, 60 and 62, Regent Street, W.

The Number of Licensed Motor Vehicles.

Regarding Mr. John Burns's recent statement in the House of Commons that license duty was paid on 76,567 motor vehicles in 1907 (*not registered*, as a writer in a contemporary has it), many overlook the fact that no license duty is paid on motor cycles or cars—amounting to several thousands—used in Ireland. Obviously, the above figures, whether right or wrong, apply to private motors in use in England, Scotland, and Wales only.

Motor Cycles in the Grand Duchy of Baden.

An extraordinary rise in the number of motor cycles in the Grand Duchy of Baden is to be chronicled. Whereas on January 1st, 1907, this class of automobile numbered 596, exactly a year afterwards they numbered 843, which means an increase of some forty-two per cent. Only eight cycles were used for carrying goods, and as to the rest, it is interesting to note how large a percentage serve commercial, professional, and agricultural ends. We furnish an analysis of the latter category from this standpoint. In the service of public authorities (post, army, corporations, etc.), 2 cycles (1 in 1907); for purposes of trade and industry, 485 cycles (376 in 1907); for professional use (doctors, land surveyors, etc.), 64 cycles (same as 1907). The number of cycles acquired for mere sport or amusement jumped from 135 to 279.

FUTURE EVENTS.

Mar. 21—A.C.U. Annual General Meeting of Council.
" 21-28—Cordingley's Motor Show, Agricultural Hall.
" 28—M.C.C. Opening Week-end Run to Brighton.
April 4—Lewisham A.C. Open Hill Climb for Motor Cycles
" 16-20—M.C.C. Easter Tour.
" 18 and 20—Brooklands Car and Motor Cycle Races.
" ——A.C.U. Quarterly Trial.
" 19 (Easter Monday)—Lincolnshire M.C.C. Hill Climb.
May 2—M.C.C. Members' Hill-climb.
" 9—Brooklands Motor Races.
" ——A.C.U. Annual Hill Climb.
June 5-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U. 24 Hours Ride.
" ——A.C.U. Land's End to John-o'-Groat's Six Days' Reliability Trial.
July 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.

A.C.U. Open Hill-climb Hill Wanted.

Sir F. S. Philipson-Stow, Bart., advised the Auto Cycle Union that he would be unable to allow the use of the grounds at Blackdown House, Haslemere, for the purpose of holding the annual hill-climbing competition this year. A letter of thanks has been sent to him for kindly allowing the use of the grounds in the past, and expressing the hope that at some future date the Union might again be allowed to hold the competition there.

An Unreasonable Request.

The County Council of Shetland has applied to the Secretary for Scotland to approve of a law prohibiting motors travelling at a greater speed than ten miles per hour. It is a somewhat ridiculous request, as our informant says that one may travel miles without sighting a house, and there are only two motor cyclists and one autocarist in the whole island! "Can nothing be done to oppose the county council?" he asks. The question is one that the governing bodies have taken up on our recommendation.

Cordingley's Show.

By courtesy of Messrs. Cordingley and Co. members of the A.A. will be admitted free to the Agricultural Hall every day during the exhibition from March 21st to 28th on presentation of their membership ticket. Free space has also been granted the Association for a stand on the ground floor of the hall, where the secretary and some of the staff will be in daily attendance.

A Big Programme.

In addition to the winter hill-climb organised by the Lewisham A.C. for the 4th prox. (locality known only to competitors), the club proposes holding a similar form of competition at Westerham during the year, also a speed judgment contest, consumption trial, penalty run, non-stop run, and two reliability trials.

Bombay to England by Motor Cycle.

Lieut. Edward Noel, who we announced some weeks ago intended to ride home from India by way of the Balkans, Austria, Germany, and France, on a motor bicycle, advises us that he hopes to start about the middle of next month. He has fitted his 3½ h.p. Triumph with an Osborne four-speed gear, an N.A.B. spring seat-pillar, and the heaviest motor cycle tyres. He will carry as spares one Whittle and two Shamrock-Gloria belts, and two spare inner tubes. He is wondering whether in case his petrol supply ran short in Asia Minor or Turkey, he could use paraffin as fuel. This should be quite possible, provided he does not allow the engine to get cold before starting up on the paraffin. A Brown and Barlow carburetter will run an engine on paraffin, but it is almost impossible to start the engine when stone cold with this fuel. Paraffin should only be used as a makeshift, however, as thick deposits accumulate on the valves, piston, and cylinder heads, necessitating frequent removal of the cylinder.

Track Racers.

With the encouragement that is to be given at the Stadium to motor cyclists, there should be a number of recruits to the ranks of track racers this year. There are a lot of prizes to be competed for, not only at Shepherd's Bush, but throughout the country, particularly at holiday times, and the field of competitors is comparatively small.

Ten Miles Limit at Bromley.

Last week the official notice duly appeared that the ten miles speed limit at Bromley, part of Beckenham Road, including Swan and Mason Hills, was to come into operation from Monday last, the 16th inst.

Sale of a Famous Racer.

Chase's famous 5 h.p. Soncin pacing machine has been sold to an Anerley amateur pace follower. The machine with its red single-cylinder Soncin engine has made frequent appearance on the Palace track during the past five years. It is said to be still good for a mile a minute.

Newcastle and District M.C.C.

Members are reminded to keep to-day (March 18th) vacant for the annual general meeting, which all are expected to attend. Members please refer to Rules 22-30, 32, and 33.

Dundee and District M.C.C.

The annual general meeting of the above club will be held in Mather's Hotel, Dundee, on the 25th inst., at 7.30 p.m. Business—appointing of office bearers, arranging programme for the year, etc. All interested are cordially invited.

Lincolnshire M.C.C. (Scunthorpe Centre).

The above club will hold a hill-climbing competition on April 8th and 11th at Trafford Hill. There will be classes for lightweights, medium ditto, and twins. On April 11th the same club will organise a reliability trial.

Bolton and District M.C.C.

At the annual general meeting of the above-named club it was unanimously decided to affiliate to the Auto Cycle Union. The hon. sec. is Mr. Arthur Richards, "Sunny View," High Street, Bolton, who will be pleased to give every information to intending members.

Essex M.C.

The opening run is to Witham on the 5th prox. Other important fixtures are as follows: May 9th, hill-climb; May 17th, speed judgment test; May 31st, non-stop run to Clacton; July 4th, 200 miles non-stop for motor bicycles; July 11th, gymkhana; August 8th, annual race meeting on the Stadium track, Shepherd's Bush; August 15th, twenty-four hours ride.

A Club Formed at Earl Shilton (Leicestershire).

A motor cycle club has been formed for Earl Shilton and district, under the title of the Earl Shilton and District Motor Cycle Club. Mr. A. T. Peacock was elected president and Mr. L. M. P. Ney, Earl Shilton, hon. secretary and treasurer. Earl Shilton is comparatively a small but growing town, with a population of about 4,000, and, considering there are already ten motor cyclists in the place, it speaks well for the popularity of the sport.

Harlesdon Cycling and Motor Cycling Club.

The Harlesdon Cycling Club has now changed its name to the Harlesdon Cycling and Motor Cycling Club, and local motor cyclists not already members are invited to join. A long list of club runs has been arranged, including a speed-judging competition. The annual subscription is 10s. 6d., with an entrance fee of 2s. 6d. The next run is on the 22nd inst. to Cobham, starting from the Harlesdon Public Library at 9.30 a.m., and on the 29th inst. to St. Albans. All motor cyclists are invited. The joint hon. sec., Mr. E. Ward Bishop, 25, Bolton Road, Harlesdon, N.W., will furnish particulars of membership.

Motor Cycle Union of Ireland (Dublin Centre).

The opening run was to be held yesterday (Tuesday) to Bray. The first hill-climbing competition is arranged to take place on Saturday, April 25th, 1908. Speed trials at Portmarnock will take place on Saturday, May 30th, July 11th, August 22nd, and October 10th, and a sub-committee has been appointed to make arrangements for the laying of boards, if possible, or in some other way to facilitate the wheeling of the motor cycles down on to the hard sand. Medals will be presented as prizes this year.

An ordinary general meeting of the club will be held at Wynne's Hotel, Abbey Street, on Monday, March 23rd, at 8 p.m.

The president (Mr. J. B. Dunlop) has kindly presented a cup for competition during the season, for which the committee take this opportunity of publicly thanking him.

Cardiff M.C.

On Monday evening of last week, Mr. J. W. G. Brooker read a paper before members of the above club on "Lubrication." His paper dealt with the theory of lubrication, solid friction and fluid friction, the evolutions of methods of lubrication, and carbon deposit. The paper was much appreciated, and several interesting problems were introduced.

Southern M.C.

At a committee meeting held on Wednesday last, the 11th inst., it was decided to hold the annual general meeting on Wednesday next, the 25th inst. Further details will be sent to members in due course. Several new members were elected, and the balance-sheet and accounts were discussed.

Birmingham M.C.C.

On Saturday next the run is to Leamington. The annual meeting is fixed for the 28th inst., and all members are requested to attend. On the following day there is a run to Evesham. Meet King's Heath tram terminus, 10.45 a.m.

Coventry M.C.

The annual general meeting is to be held this evening (Wednesday) at eight o'clock, at the Craven Arms Hotel. On Saturday the opening run takes place. Members will meet at four o'clock at the Unicorn Hotel, Stratford-on-Avon, for a photograph, and tea will be taken at the Bath Hotel, Leamington, at 5.30 p.m. A simple but novel form of competition will be held in connection with the run from Stratford to Leamington, particulars of which will be given to members at the start.

Bradford M.C.C.

The above club's balance-sheet for the year ending December 31st, 1907, shows an amount of £13 9s. 8d. in hand after payment of all liabilities. The officials intend to pursue a vigorous programme during the present year, says our local correspondent, the following list of events having been arranged: (1) Bradford to Edinburgh, 400 miles in 24 hours for Triumph Cup; (2) 200 miles reliability N.S.U. Cup; (3) Dyson Shield for hill-climb; (4) Merrall's Cup, sunrise to sunset competition; (5) speed judging competition; (6) minor hill-climb; (7) combined competition; (8) fast and slow hill-climb; (9) circular route (absolutely non-stop run).

It is satisfactory to note that the membership is approaching the century.

Western District M.C. (London).

A most successful competition and opening run was held by the above club on Saturday last, the 14th inst. The event took the form of a paperchase through the lanes which abound in the neighbourhood of the Bath Road. The club was favoured with a fine day, and after a most enjoyable run of about an hour the hares were overtaken by the sports secretary at Uxbridge. There was a record attendance of members, and it is hoped that the monthly competitions which the club intends holding will lead to many new members joining and to an increased attendance at the runs. The following was the result of paperchase: 1st, C. N. Gould (3½ h.p. W. and P.); 2nd, H. W. Beach (5 h.p. Vindec); 3rd, W. J. Barratt (3 h.p. Fafnir).

Lincolnshire M.C.C.

A very well attended meeting of the committee was held at Lincoln on Saturday last when representatives attended from Gainsborough, Grantham, Barrowby, Sleaford, Scunthorpe, and Louth. Thirty-one new members were elected, twenty-one being sent in from the Scunthorpe Centre of the club, which is going well. It was decided that "this club regrets its inability to assist the Motor Union petition as to taxation, the principle of singling out a class of road users

Club News.—

for the maintenance of the roads being considered to be wrong." The resolution of the R.A.C. that "there is no justification for any additional taxation on motors" was endorsed, and each member of Parliament in the county and district covered by the Lincolnshire Club is being written to, the motor cyclists' case being presented. The agenda for the council meeting of the A.C.U. on Saturday next was discussed, and the ten delegates informed of the wishes of the club. It was decided to hold the opening hill-climb at Waddington on Easter Monday afternoon, and a special committee was elected to deal with the detail work. After a long discussion, it was unanimously decided to have only one course for the reliability trial on Whit-Monday to consist of a circular run of 140 miles in the county. It was reported by the secretary that a good centre had been formed at Louth, with Mr. Cusworth as chairman, and Mr. W. J. Clarke as secretary. The question of an inclusive policy for insurance was discussed. Mr. Brooke, the chairman of the Scunthorpe Centre, offered a cup for a team trial between the various centres. Mr. Foster, the chairman of the Lincolnshire M.C.C., announced his intention of offering a trophy, and Mr. Brunning, a vice-chairman, offered a prize. It was decided to have a long distance trial; the course suggested is Lincoln to Yarmouth and back. The membership is now 246.

Dublin and District M.C.C.

The opening run of the above club was fixed for yesterday (the 17th inst.), when it was arranged to meet the Dublin Centre of the M.C.U.I. at the Royal Hotel, Bray, Co. Wicklow, at 3 p.m. The year's programme will include a reliability trial, hill-climbing competition, speed and consumption trials.

The following is a list of officers elected at the recent general meeting: President, Dr. Reginald White; vice-presidents, C. B. Franklin and P. S. Sheardown; hon. secretary, Mr. M. J. Chambers, 15, Edenvale Road, Ranelagh, Co. Dublin; hon. treasurer, Mr. Henry Molloy, 8, Sandford Avenue, Donnybrook, Co. Dublin; committee, the hon. secretary, the hon. treasurer, Jas. Browne, Thos. W. Collins, F. J. Walker, Wm. H. Mowlds, Wm. Molloy, and H. McAdoo.

Cambridgeshire M.C.C.

The above club was successfully formed on Wednesday evening last at Ye Olde Castle Hotel, Cambridge. The chairman was Councillor F. Morley, who presided over a representative meeting, and explained the advantages of the club, which he said was being organised for the purpose of holding competitions, club runs, and social intercourse. There was some discussion on the similarity of the initials for badge purposes of this and the University Club, but it was finally decided to call the club the Cambridgeshire Motor Cycle Club, the subscription is fixed at 7s. 6d. The hon. secretary is Mr. C. W. Wilson, 38, Victoria Park, Chesterton, Cambridge, who will be glad to receive names of motor cyclists wishing to join the club. Mr. Wilson is kind enough to mention that the article recently published in *The Motor Cycle*, "How to Form a Motor Cycle Club," by J. H. Hall, was of very great assistance in organising the meeting.

Motor Cycle Union of Ireland (Ulster Centre).

The A.G.M. was held in the Grand Central Hotel, Belfast, on Thursday last, the 12th inst., Mr. R. Graham Lindsay occupying the chair. There was a very good attendance.

The Secretary (E. B. Waring) read the annual report, which gave a summary of the work done during 1907, including the various competitions and names of winners. The membership showed a very satisfactory increase, thirty-five names having been added during the year, the total number on the roll to date being 102.

The Treasurer's statement was also of a gratifying nature, the total receipts being far in advance of the previous year and the balance in the bank considerably larger.

Both reports were unanimously adopted.

Special reference was made to the agreement with the Irish Cyclists' Association regarding motor-paced races, also to the recent speed limit inquiry, and the valuable assistance rendered by Mr. Rees Jeffreys in connection with the latter.

Correspondence from the Motor Union and the Royal Automobile Club with reference to affiliation was referred to the committee for their consideration and report at a subsequent meeting, as was also a communication from the Motor Union dealing with the question of taxation of motor vehicles.

The election of officers resulted as follows: President, the Marquis de Mouzilly St. Mars; vice-presidents, Messrs. H. C. Craig, W. C. Mitchell, T. Macgregor Greer, H. Berrington, Thomas Greer, and Dr. Sidney Brice-Smyth; committee, Messrs. H. G. Ferguson, T. H. Dunlop, T. Moles, T. Dickson, G. Kirkpatrick, W. Wilson, J. J. Kennedy, R. G. Lindsay, T. Denby, J. L. Williams, T. Ireland, J. A. M'Kee, and A. W. Hamilton. Mr. J. S. Garrett was re-elected hon. sec. and Mr. J. Holden was elected hon. treasurer. Mr. P. S. Bray was re-elected hon. solicitor, and a vote of thanks was accorded him for his valuable services during the year, more especially in connection with the speed limit inquiry. Messrs. T. A. Clapham and J. Stewart were elected auditors. The following new members were elected: Messrs. C. B. Hurst, S. Johnston M'Dowell, Thos. T. Maclean, F. H. Maclean, C. E. Murphy, and Jas. Kane.

The Chairman intimated his intention of presenting prizes for a special reliability run during the year, and a vote of thanks was unanimously passed to him.

THE A.C.U. COUNCIL MEETING.

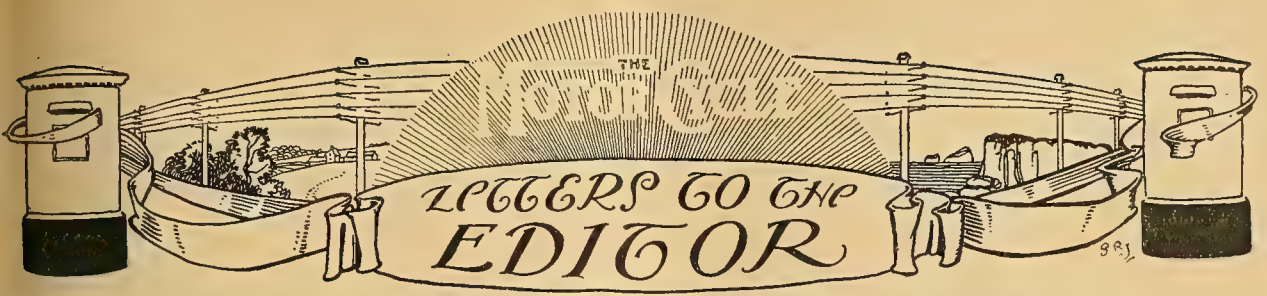
We have received a lengthy letter from Mr. G. J. Wilkinson, the hon. secretary of the Lincolnshire Motor Cycle Club. The letter is to urge club delegates and representatives of private members of the A.C.U. to support the proposals standing in Mr. Wilkinson's name for the A.C.U. council meeting on Saturday next. We regret we have not sufficient space to publish the whole of the letter, but doubtless all club delegates and representatives of private members will read the proposals in the agenda paper which will be circulated by the secretary of the A.C.U. Mr. Wilkinson is strongly in favour of dividing the country into centres on the lines of the N.C.U., and thinks it would be quite possible for this to be done before the end of 1908. With regard to the payment of delegates' railway fares, Mr. Wilkinson rightly points out that the provinces remain practically unrepresented, partly because of the expense in attending the meetings, which are always held in London. He therefore has so worded his proposal that expenses be paid when the meeting is held over thirty miles from the delegate's residence. Mr. Wilkinson concludes by hoping that the delegates and representatives will work together and assist the committee of the A.C.U. to place the Union on an ideal basis.

The business of Messrs. H. Collier and Sons, Herbert Road, Plumstead, has been formed into a limited liability company with the title of H. Collier Ltd., and in future the Matchless motor cycles will be made in new works, May Place, Plumstead, in addition to the old premises.

A NOVEL COMPETITION.

Our contemporary *Photography* announces a radical departure in competitions which ought to commend itself to all users of the camera. The idea is capable of considerable development. In the current issue of the journal is published a picture for which its readers are asked to provide a title. This title must be sent to the Editor on a coupon which is issued with the paper, together with a postal order for 6d. and the most appropriate title will receive one-third of the total prize money, which the publishers of the paper guarantee shall amount to at least £15, so that here is a chance of getting £5 as a minimum for the best title. Consolation prizes of approximately £1 each will be distributed; thus the whole of the money sent in will be returned to successful competitors. The titles for this picture must be sent on the coupon issued in the current issue of *Photography*, and must reach the publishers, 20, Tudor Street, E.C., not later than March 24th.

Handle-bar control has so much to recommend it that it is not surprising to find it steadily gaining in favour among motor cyclists. Only those who have given a trial to some efficient system of this kind—such as that supplied by the E. M. Bowden's Patents Syndicate, Ltd., for instance—can fully appreciate the comfort and sense of security it gives to the motor cyclist, and they who have once given handle-bar control a fair trial are rarely found to revert to any other system.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Outside Flywheels.

[3177.]—Might I venture a few remarks *re* outside flywheels? In my own experience they have one serious drawback, and that is, if by any chance the engine backfires, some damage is bound to occur sooner or later. I started my favourite pastime on a Calvert machine, which had a large heavy outside flywheel. Once I had the crankshaft bent, also connecting rod, and lastly I broke the boss off the flywheel, all through backfires.

With inside flywheels no such damage can occur, as there is not the twisting movement brought into play as in the case of an outside flywheel, and I think that this fact alone renders the inside flywheel type more mechanically correct.

T. F. COX.

Silence.

[3178.]—I am greatly honoured by such an expert on silencers as Mr. Aldington condescending to criticise my poor little silencer. Perhaps I may be allowed to point out that not for a moment did I intend the size of the silencer nor the number of holes in either pipe to be a fixed and unalterable quantity. The engine for which I made the original silencer is a 74 × 76 mm. De Dion Bouton, and, naturally, for an ordinary 3½ h.p. engine about 85 mm. bore I should greatly increase the number of holes in the central pipe, and possibly enlarge them to ⅜in. with a corresponding increase in number, though not, I think, in size of the holes in the outer shell. As for Mr. Aldington's scornful remark about this being the result of two years' thinking out, may I inform him that I have only made two silencers in that time; I am, in fact, far too busy in matters other than motor matters to give more than a little time to these problems at the ordinary holiday times. The De Dion engines, as Mr. Aldington will remember, have abnormally small exhaust pipes. Mine is only ¾in. outside diameter, but I question whether anyone has ever made a De Dion engine any better by increasing the size of the pipe. This matter is frequently referred to in the columns of the motor papers, and that opinion is, I think, almost universally held.

G. D. MONICE.

Military Motor Cycling.

[3179.]—Whilst thanking you for the hospitality you extended to me in your columns last year, I again beg you to repeat the courtesy. Last year, by means of a letter published in your columns, we were enabled to fill all the vacancies we had for motor cyclists, and were obliged to disappoint some candidates for membership. Under our new organisation, which comes into force on April 1st, we shall have vacancies for fifteen or more motor cyclists.

There are two points to which I wish to draw the attention of your readers:

(1.) That any man who joins us before March 31st need only engage to serve in the Territorial Army for one year, whilst anyone who joins after that date (unless he is already a member of a volunteer corps) will have to engage for four years.

(2.) That out of the dozen readers of *The Motor Cycle* who joined us last year under the then existing volunteer regulations, every single one has found motor volunteering so attractive that he has decided to re-engage with us under the Territorial Army regulations. This, I think, is in itself the best testimonial possible.

I may add that this cyclist regiment will be the only one formed in the vicinity of London, and that it consists entirely of cyclists and motor cyclists, and has an establishment of 21 officers and 532 men.

Any further information I can give your readers is at your service; also, intending recruits should apply at the headquarters of the London Cyclist Regiment, 45a, Horseferry Road, Westminster, S.W., any Tuesday or Thursday evening between the hours of 7 and 9, and ask for yours faithfully,

ALBERT H. TRAPMANN,
Captain and Acting Adjutant.

The Motor Union and Taxation.

[3180.]—There seems to be some misapprehension as to the attitude of the Motor Union in the matter of taxation of motor cycles. It arises partly from the fact that more publicity has been given to the conversation which took place between the Chancellor of the Exchequer and the chairman of the Union than to the memorandum handed in to the Chancellor, which embodied the considered proposals of the Union, and formed the basis of the conversation. These misapprehensions may be removed by showing the Union's taxation proposals in a comparative form. They are set out in the following table, side by side with the present scale of taxation and the scale proposed by the Royal Commission:

Vehicle.	Present taxation.	Taxation proposed by—Royal Commission.	Taxation proposed by—Motor Union.
	£ s. d.	£ s. d.	£ s. d.
Motor bicycles weighing less than 2 cwts.	0 15 0	1 0 0	0 7 6
Motor cycles weighing 2 cwts. and less than 7 cwts. ...	0 15 0	1 0 0	0 15 0
Motor cars up to 12 cwts. unladen	2 2 0	2 2 0	1 10 0
Motor cars exceeding 12 cwts. and up to 15 cwts. ...	2 2 0	3 3 0	2 0 0
Motor cars exceeding 15 cwts. and up to 20 cwts. ...	2 2 0	5 5 0	3 0 0
Motor cars exceeding 20 cwts. and up to 25 cwts. ...	4 4 0	5 5 0	4 0 0
Motor cars exceeding 25 cwts. and above (commercial vehicles excepted)	4 4 0	8 8 0	*6 0 0

*£6 up to 30 cwts. and £2 for every additional 5 cwts.

An examination of this table will show that the Motor Union asks for a reduction upon the taxes paid by the users of small-powered motor vehicles.

The Union also strongly supported the recommendation of the Royal Commission that the proceeds of taxation should be devoted to the roads.

There are two ways of opposing obnoxious proposals, viz., fierce denunciation, or by formulating a reasonable alternative scheme. Fierce denunciation wins a passing popularity, but it gains for those who indulge in it the fatal reputation of being entirely impracticable enthusiasts. The very great influence which the Motor Union possesses with public authorities is due to their appreciation of the fact that the Union is a thoroughly practical body with whom they can deal.

It must be left to motorists to say whether a reasonable proposal put forward in a conciliatory manner will not be more likely to receive attention from the Chancellor of the Exchequer than threats of opposition.

W. REES JEFFREYS, Secretary.

The Future of Motor Cycling.

[3181.]—In the discussion which followed the reading of this paper, I see Mr. M. J. Tuchmann remarked that there is not, so far as he knows, an efficiently sprung machine so far as the back is concerned. Has he tried the Rex cantilever seat as fitted to that company's models? If not, he need go no further before knowing of, at all events, one satisfactory machine, and I feel sure that one short ride would convince him.

He also says that spring forks leave a good deal to be desired. Some certainly do. One may wish for a good deal more "spring" in some, and a good deal less in others. However, again let me draw attention to the Rex machine and ask Mr. Tuchmann what more he desires. From a practical point of view I consider the Rex spring fork to be all that is necessary, and quite the best I have ever seen. It does not increase any tendency to "skidding."

I may add that I have no axe to grind; in fact, I am in no way interested in any firm of motor cycle makers or traders, but I am a well-satisfied and perfectly comfortable rider—up to 400 miles per day—of Rex motor cycles, and I never wish for anything better sprung or more efficient generally than my new mount. FRED C. BAGSHAW.

[3182.]—I note that during the discussion which followed the reading of Mr. Bell's paper, "The Future of Motor Cycling," it was observed by one speaker that "An efficiently sprung machine, as far as the back was concerned, had not yet appeared on the market."

This statement is erroneous. The Bat is so sprung, and the result is a complete success; even the footboards being suspended along with the saddle pillar, etc. The rider is admirably protected. Anyone testing the difference between a machine sprung on Bat lines and the ordinary motor cycle will recognise the sterling value of the device fitted to the Penge Co.'s two-wheeler. My last spin on a modern rigid frame machine showed me that the latter is no longer satisfactory for the tourist, to whom both pace and comfort are essential. The shaking was altogether too pronounced.

It is only just that mention should be made of the excellence of design of the Bat machine, which, in so very important a matter, has given all its rivals a lead. It is important also to note that the strength of the main frame of this motor cycle is in no way sacrificed to comfort. My weight is about fourteen stones, and I show no mercy in the matter of driving the "twin" engine for all it is worth. My conviction is that the combination of strength and comfort is well nigh perfect. No more rigid frame productions for me! I would not now ride the ordinary motor cycle, and more especially the light one, on bad roads, for touring becomes then a misery rather than a sport.

Given a good engine, especially a "twin," the rider has never to complain of vibration from this source. The road shocks are the only causes of any discomfort which he may experience. Travelling slowly, the motor cycle is far more comfortable than any push bicycle that ever was designed. But the speed at which we travel tends to make the inequalities of the road sharply felt. The Bat spring suspension, which includes that important detail, suspended footboards, goes far to meet the difficulty, and assuredly marks a splendid advance. It is simple and satisfactory in every way. The claim that this machine is the "Pullman car of motor cycling" seems to me thoroughly justified.

The abolition of those absurd survivals, pedals, and their replacement by footboards, insulated from road shocks, will be appreciated by all riders whose ideas are not dominated by memories of the discarded push bicycle.

Switzerland. E. DOUGLAS FAWCETT.

How to Prevent Punctures.

[3183.]—I have read your valuable paper for the last four years, and I find in all the recent trials that punctures have been the chief cause of stoppage. Yet strange to say, how few try to find a remedy to prevent them. Of my five years' of motor cycling I have never had a puncture in the front wheel, but I have had my share in the back wheel, and they have always been caused by either wire or nails. Now the front wheel treads upon a nail or some sharp wire, but it does not penetrate the front tyre; it tilts upon its end, and the back wheel coming on in quick succession treads upon the nail whilst it is in its vertical position, with the result that the tyre is punctured. I do not think any puncture-proof band will prevent a nail piercing the tyre in such a case, unless it is made of a material equally as strong as the nail. (How would a finely woven mat of wire do to be woven in with the tyre?)

My own preventive last year has proved highly successful, and I have not had any punctures since I adopted it. I have fitted a large leather flap to the front mudguard extending to about ¼in. from the ground, so if the front wheel tilts any sharp metal up upon its end, the flap knocks it over before the back wheel comes upon it. One objection to the flap is its close proximity to the ground, causing a lot of dust. To remedy that a chain could be fitted to hang immediately in front of the back wheel. In addition, I have always had a wire fixed across the tyres, which is a fairly good preventive. I propose to say a few words regarding tyres with respect to the gear of a machine. My machine was fitted with a certain make of 2¼in. tyres. There is a certain hill in our district I could never climb without pedalling. Now I have fitted another make of tyre, and I can simply fly up, proving that tyres have a deal to do with hill-climbing, and have either reduced the gear or they are quicker and better tyres. Some tyres are thick, heavy, and dead, and are made of a mixture of composition and rubber, and quickly wear through to the canvas.

HAROLD T. ANDERSON.

Motor Cycling in Ceylon.

[3184.]—The enclosed photograph may be of interest as coming from the Colonies. The 2¾ h.p. Minerva shown has done three and a half years' hard service, and has never suffered from anything worse than a punctured tyre, and although it has done many thousands of miles over our very trying roads, it is running better now than when new. Overheating is quite unknown on this machine, thanks to the air scoops.

I also have a 4½ h.p. twin Minerva which has given entire satisfaction for the last two years, having only played up once, viz., when water was allowed to get into the petrol. The Eisemann magneto and distributer are foolproof and apparently indestructible. We have never had to ask for

expert advice concerning either machine, which is just as well, as experts here are few and far between.

Your paper is much appreciated here, being the only one from which we can learn anything.

L. M. W. WILKINS.

P.S.—I need hardly add I have no interest in Minerva Motors, Ltd.

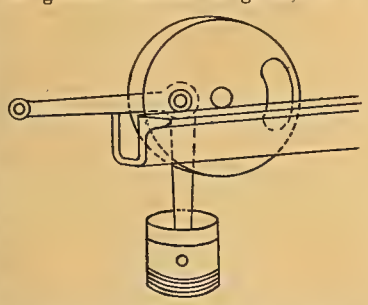
Non-skid Tyres.

[3185.]—I should like to endorse the remarks made by W. Dann [3151] with regard to the twin-tyred wheel and side slip. I have ridden on some atrociously bad roads here (North Wales) this winter. I must say I have not had a single side slip—in fact, I have not had the slightest fear or indication of one. T. E. GARRATT.

The Balancing of Petrol Engines.

[3186.]—"Shazbazzik" in his letter [3159] seems to forget at if the piston, gudgeon pin, and connecting rod small d of a petrol motor are exactly balanced by masses on e flywheels, the engine as a whole will be as much out of lance in the horizontal as it was before in the vertical ane. The general practice of locomotive and other engineers to balance about two-thirds only of the reciprocating parts revolving masses. Of course, in a single-cylinder motor cle the most suitable proportion is affected by the relative portance (from the rider's point of view) of vertical and rizontal vibrations, remembering always that it is impossible balance completely any reciprocating mass by a rotating e. Factors which have a considerable bearing on this matter e the strength, design, and elasticity of the frame; the sition and method of attachment of the engine; and the rangement of the saddle, footrests, and handle-bars with gard to the engine. In "Shazbazzik's" case the vibration as only noticed to be excessive when the sidecar was tached. I presume that the front cross tube of the sidecar is fixed close to the engine crank case.

The makers, in designing the balance weights, probably did t take into account the effect on sidecar footboards of the gine vibration; but with the increasing use of sidecar tachments the balance of many motor cycle engines will ve to be considered. No general rule can be given, but it seldom advisable to lance more than reequarters of the iprocating parts in motor cycle engine ving one vertical linder. In a twin chine with cylinders 90° (very few en- les are so made) a st excellent balance every direction is tained if the weights e just equal to lift- one piston and nnecting rod with the other connecting rod horizontal— e test being carried out on a lathe bed or a couple of iron rs levelled up with a spirit level. Most twins are made th the cylinders at 60°, in which case about one and two- rds of the weight of a piston and connecting rod little d and both big ends should be balanced.



Some little time ago I came across a twin of reputed make, e engine of which vibrated badly at high speeds. I found at the balance weights more than lifted both pistons and ds. As the machine was going to have new pistons fitted simply made these heavier than the old ones (as a matter fact the new castings were of a much heavier pattern). hen thus altered the machine ran beautifully at all speeds, e improvement being most marked. This case was, of urse, a fault in the opposite direction to that described in ter No. 3159, our engine being over-balanced.

OSPREY.

[3187.]—Having read "Shazbazzik's" letter on the ove subject, perhaps a few words on the same may not be t of place. It is obviously impossible to balance the ciprocating parts of a single-cylinder engine by revolving lance weights. If an attempt is made to do this an un- lanced couple is set up at right angles to the movement the reciprocating parts. This is very undesirable in a otor cycle, as the following incident will show. In a cer- in engine no attempt had been made to balance the piston connecting rods, and the vibration in a vertical direction as very bad. The engine was taken down and three ⅜in. les were drilled in each flywheel rim. This had the effect quite curing the vibration in the engine, but caused an cessive vibration in the front fork which resulted in a acture of the steering tube just above the fork crown, and e owner narrowly escaped a very severe accident. The gine was again taken down and one hole in each flywheel as plugged up, with the result that there is now a very ight vibration in a vertical direction, but none in the front rks.

The best that can be done with a single-cylinder engine to adopt a compromise between a perfect balance verti- lly and the same horizontally. This can be done approxi- ately by balancing the crank pin and the whole of the connecting rod, and leaving the piston to take care of itself

Of course, by using reciprocating balance weights, as is done in some of Yarrow's torpedo boat engines, a practically perfect balance may be obtained, but this is not practical on a motor cycle engine.

Perhaps such firms as the J.A.P., L.M.C., or the Triumph, would give us their views on this interesting subject.

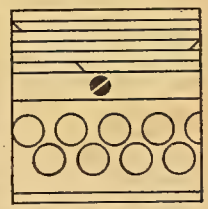
J. E. GREENWOOD.

[3188.]—Being designer at one of the leading motor firms, I would like to point out to your correspondent "Shazbazzik" [3159] that the only correct way to perfectly balance a reciprocating mass, such as the piston, gudgeon-pin, and a portion of the connecting rod, would be by another reciprocating mass of equal weight. A fair compromise is, however, effected by taking the weight of the crank pin, adding to this the weight of one-third of the lower length of the connecting rod, and considering the whole of this weight as revolving in a circle the diameter of which is equal to the piston stroke; this can then be accurately balanced by suitable weights in the flywheels.

I have noticed the vibration complained of by "Shazbazzik" in the Quadrant engine, but am inclined to think that this is more due to high compression than to incorrect balancing of parts. I have yet to see a single-cylinder petrol engine of 3½ h.p. and over which runs smoothly and without vibration at any speed above 2,000 r.p.m. The smoothest running engine I ever possessed was the bulky and heavy old 2¾ h.p. 80 by 80 M.M.C. as fitted to the good old Excelsior machines. The sweet running and flexibility of this engine were chiefly due to its very low compression. Of course this meant sacrificing a certain amount of power for hill-climbing.

J. T. CLARKE.

[3189.]—My experience agrees with that of "Shazbazzik." I have a 3½ h.p. engine which has been greatly improved by fitting a very light piston, and altering the balance weights so that the piston and counterweights balance each other. This has made the engine run much faster and with much less vibration at all speeds. Very heavy flywheels are fitted, which is an important point.



The piston is something of a novelty in this way. It is drilled with ⅜in. holes to assist lubrication, as shown in the sketch. Parts of the baffle plates are cut away from the top of the crank case, but no trouble is experienced with over-lubrication. This engine took me from Lyme Regis to Exeter recently without a touch of the pedals. Gear 4½ to 1, 80×85 engine, beating a 3½ h.p. Triumph. A glance at the "Contour Road Book" will show what the hills are like. (Coast road *viâ* Sidford.)

L. MOGRIDGE.

First Motor Cycle Race at Brooklands.

[3190.]—Referring to Mr. Wells's letter concerning the race at Brooklands Track between two private sportsmen, the conditions of this match were well known to Mr. Wells, who intended to be present but for the alteration of the original date.

Mr. McMinnies's machine was his own 3½ h.p. T.T. Triumph on which he made a non-stop run in the quarterly trials, and Mr. Bickford's a 5 h.p. T.T. Vindec Special 1907 model. Naturally both competitors left no stone unturned to get the fastest possible speed out of their machines, there being no restrictions whatever.

We are too busy to accept Mr. Wells's challenge, and it does not concern us whether or not a 5 h.p. Vindec Special can do over sixty miles per hour, and Mr. McMinnies's performance is quite sufficient to prove the speed that can be accomplished on a T.T.T.

F. HULBERT.

(Several letters are unavoidably held over.)

EXPERIENCES WANTED.

"J. A. V." (Cambridge) wishes for owners' experiences of the Riley 6 and 9 h.p. tricars.

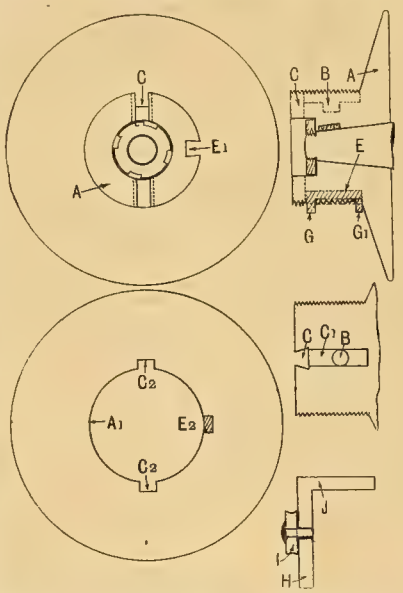
"S. T. R." (Hastings) would like readers' experiences with the latest type of Roc all speed gear, as exhibited at the Stanley Show in November last.

RECENT PATENTS

By ERIC W. WALFORD, F.C.I.P.A.

Another Variable Pulley.

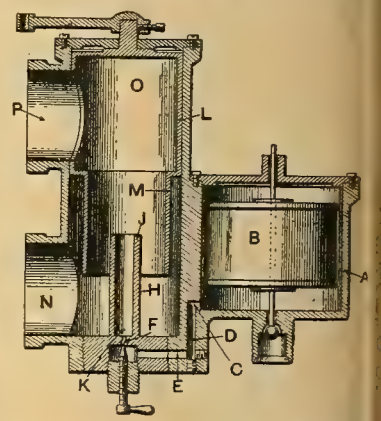
THE inventor of this pulley is Mr. T. W. Cairns, of 2, North Road, Birkenhead. Its principal merit appears to be in the fact that it can be adjusted while in use. In a screwed boss A a slot is cut across the threads and also across the face or end of the boss as at C, and a hole B is drilled in the bed of the slot to receive a spiral spring. Where the slot crosses the pulley face it is undercut. In this slot is placed a key, and this key has a radial or upward movement when pushed by a spring in the hole at B, but cannot move laterally by reason of the undercut slot C, the key being shaped to fit. Upon this screwed boss, which is chased with a left-hand thread, is screwed the loose flange A_1. This has one or more slots C_2 cut across its threads, and when one of these slots registers with the slots C and C_1, the key H J, pushed outwards by a spring, enters it. These slots in the loose flange are of sufficient depth to allow the key to enter for about half its depth, so that half the parallel part of the key is engaged with the loose flange and half with the fixed flange, thus locking them together and driving solid.



The means of pulling this moving key out of engagement with the loose flange independently of the rotation of the pulley are as follows: On the moving key H is mounted a small wheel on a stud I. It is so mounted that when the key H J is depressed below the screw-threads on the pulley boss the stud centre coincides with the shaft centre, but when the moving key is in engagement with a slot in the loose flange the stud centre does not now coincide with the shaft centre, but describes a small circle round it. To restrict the diameter of this circle and to bring the stud centre to the shaft or pulley centre, a lever is pivoted at one end and pulled or pushed at the other end; the central part of this lever being adapted to bear against the small wheel on the stud I, a part of each revolution of the pulley, or in other words the edge of the lever, cuts the aforesaid circular path described by the stud centre. As the diameter of the path is lessened the key is also drawn out of the slot in the loose flange, until at last the flange is free. Thus the flange may be locked and unlocked at will. As the loose flange under the influence or action of the belt would have a tendency to jam against the fixed flange or else to run itself off the boss, according to its direction of travel, travel limit stops are combined in the shape of the key E. Fixed in the loose flange is a key E_2, which projects at each side of the flange. When the flange screws, say, outwardly, the side of the key E_2 eventually comes into contact with one side of the key E at G, thus preventing its further travel in that direction. When the flange travels inwards, G_1 limits it in that direction. The key is fixed in a dovetail or undercut slot E_1, being shaped to fit the slot.

An American Carburetter.

THIS carburetter is the invention of Mr. P. Jenness, of Philadelphia, U.S.A. It will be seen that there are no automatically moving parts, the throttle being the only movable element. Nevertheless, it is claimed that perfect automatic action is obtained by virtue of the arrangement and relative dimensions of the petrol passage. The carburetter is provided with the float-feed chamber A having the float B therein. C designates a port in the lower portion of the float-feed chamber, through which liquid hydrocarbon flows through the passages D and E to the port F, and thence into the nozzle H, the internal diameter J of which depends upon the size of the admission port F.



The lower end of the bore J terminates in a plane extending perpendicular to the longitudinal axis of the nozzle H, as indicated at K, since such a construction gives in practice the desired reduction in pressure at the lower end of the nozzle H, in proximity to the port F. The throttle drum L has a reduced end M, into which the nozzle H extends, said reduced end forming the strangle tube. N designates the air inlet of constant area, and O the commingling chamber for the air and liquid hydrocarbon, which latter in their commingled state pass through the outlet P. The loss of head due to the impact of the liquid passing at high velocity through port F against the liquid in the nozzle H, the velocity in which is always less than in port F, increases as the velocity increases, thus lowering the co-efficient of discharge as will be clearly understood by those skilled in this art, and the amount of liquid hydrocarbon has the same relative proportion to the air for all speeds of the engine, thus producing a substantially constant explosive mixture at varying speeds. The inventor states that he has found as the result of numerous experiments that by employing a construction such as is illustrated in the drawings, the desired results may be attained It is, however, essential that in all cases the admission port be smaller than the discharge end of the nozzle.

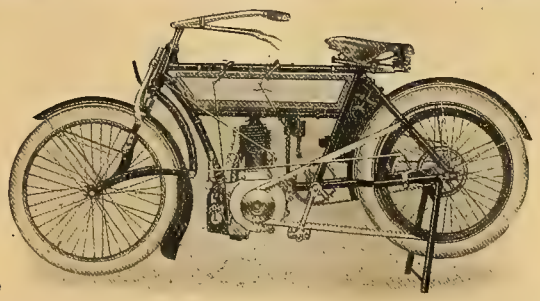
Messrs. L. Ripault and Co., 64a, Poland Street, W., agents for the K D lightweight motor bicycle, have organised a novel competition. The "entrance fee" consists in the competitor trying a half-crown mouth siren, and stating why he considers he should be awarded a K.D. motor bicycle for nothing. Our well-known contributor, Mr. B. H. Davies, has consented to act as judge, and on his decision the machine will be awarded to the competitor who gives the most satisfactory reply. The K.D. motor bicycle may be seen at the company's showrooms

The Metropolitan Machinists' Co., 75, Bishopsgate Street Without, have sent us a copy of their 1908 catalogue. This firm make specialities of two types of motor bicycles: The 1½ h.p. Featherweight, fitted with an engine which possesses an outside flywheel, total weight only 60 lbs., and a medium power machine of 3½ h.p., bore and stroke 80×80 mm., fitted with gear driven magneto and spring forks. The machine is well designed and substantially built. The firm in question also make a point of stocking a full range of accessories including belts, chain belts, accumulators, coils, lamps, and almost every known motor cycle accessory.

VINDEC · SPECIAL

THE · MOTOR · CYCLE · OF · MERIT.

S.B.T. Co LTD



Model H, single cylinder, 3½ h.p., with "Vindec" Two-speed Gear, makes an ideal combination for the discriminating buyer who wants solid comfort combined with absolute reliability. It will take you anywhere—can be started without the least difficulty in the middle of a steep hill—and is a worthy companion to the twin-cylinder "Vindec," which is acknowledged to be one of the best motor cycles in existence.

Our profusely illustrated "Book of the Vindec Special" is interesting reading—sent free upon receipt of request.

ORDER AT ONCE TO SECURE DELIVERY BEFORE EASTER.

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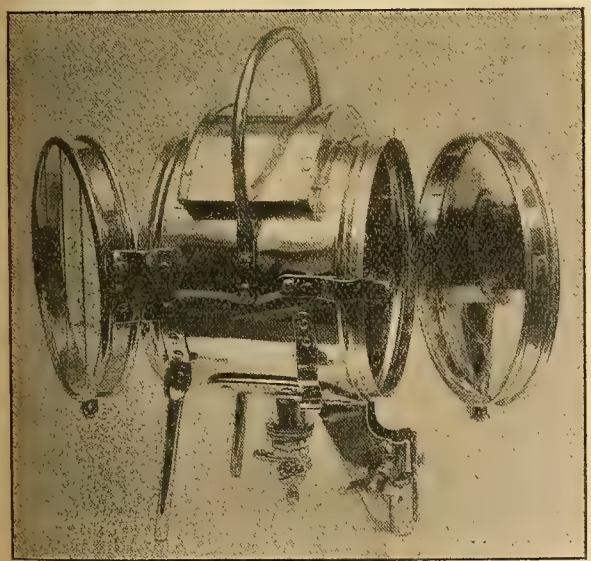

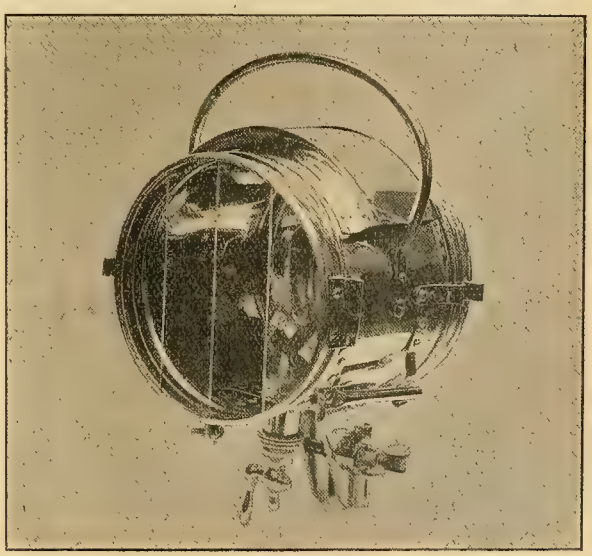

We shall shortly place on market an automatic six-hour Generator.

Gas refining chamber, movable burner to stop glare in traffic, folding legs, top handle.

Weight 2¼ lbs., length 5 inches, diameter of lens 5 inches, power 1500 candle, direct beam 250 feet, light extends 450 feet, shadows thrown at 500 feet, small newspaper print read at 400 feet.

FITTED WITH

PATENT LEVERAGE BRACKET

which absorbs most of weight and so saves any likelihood of breaking bracket of cycle.

F.R.S.

PLATED OR BRASS

25/-

This lamp is also made in a larger size, very powerful, 32/-, for tricars and small cars of 15 h.p.

To introduce to riders who have not taken interest in this question of lamps we are offering a free trial of three days on receipt of P.O. for amount, payable to F. Swinburne. Dealers' terms on receipt of enquiry.

No soldering, but riveted and brazed throughout.

12, Clyde St., S. HALL & SONS, LTD., EDINBURGH.

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ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given, c/o *The Motor Cycle*, 20, Tudor St., E.C.

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Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

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HALIFAX Motor Exchange. — As the largest dealers in Rex machines, we have a few 1907 shop-soiled machines at clearance prices. Great bargains. Exchanges in all 1908 Rex and N.S.U. models.

HALIFAX.—1908 2¾ h.p. Peugeot, light, low, Bat frame, brand new; £21; cannot repeat.

HALIFAX. — 1907 35 guinea twin Rex, spring forks, soiled; £23; you save £13 15s.; we gain your confidence.

HALIFAX.—1907 magneto twin Rex, unridden, November price, £42, our price £28 10s.; another £13 10s. saved.

HALIFAX.—Shop-soiled 1907 black and gold Rex de Luxe, twin tyre, magneto, Roc clutch; 1908 price £55 13s., our price £35; you save £20 13s. Only a Rex agent can do it.

HALIFAX. — 1908 Rex de Luxe, Roc clutch, two-speed gear, magneto; 55 guineas; liberal exchange.

HALIFAX. — 1908 Rex featherweight, magneto, magnificent hill-climber, recommended; 25 guineas.

HALIFAX.—1908 3½ h.p. N.S.U., magneto, just delivered; £40; allow £25 for last year's model.

HALIFAX.—1908 5½ h.p. twin N.S.U., magneto; £52; allow £25 for 1907 single magneto, in good condition.

HALIFAX Motor Exchange. — Extended payments, exchanges; high-class machines purchased for spot cash. — 16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

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What are you doing about that new machine ?

THE PREMIER Motor Agency

can help you to obtain prompt delivery of these 1908 Models:

TRIUMPH MAGNETO,
N.S.U. (single or twin),
F.N. (Lightweight or 4-cylinder),
REX MAGNETO, Lightweight (£25),
MINERVA,
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	£
3½ h.p. Magneto, **Triumph**, 1907 ..	34
3½ h.p. Magneto, **N.S.U.**, 1907	35
4 h.p. **Roc**, 1908	40
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SINGLE CYLINDERS (Second-hand).

	£	s.
3 h.p. Magneto, **Triumph**	24	0
3½ h.p. Magneto, **N.S.U.**, free engine	22	0
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	£	s.
5 h.p. Magneto, **Vindec Special**, two-speed gear	35	0
5 h.p. Magneto, **Vindec Special** ..	28	0
5 h.p. Magneto, **Norton**	30	0
4½ h.p. Magneto, **Minerva**	23	0
5 h.p. **Twin Rex**	17	10

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SOME NEW BEADED COVERS, 26 × 2¼in., **12/6.**

PREMIER MOTOR AGENCY,

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Telephone: 4310. Telegrams: "Primus," B'ham.

The World's Motor Cycle Emporium.

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HALIFAX Motor Exchange. — All machines are despatched in running order, with charged and guaranteed accumulators.

HALIFAX. — Very fine light low Rex, spring forks, Longuemare, in very good order; £12 17s. 6d.

HALIFAX.—4 h.p. twin-cylinder Werner, 26 by 2¼ Michelins, very smart mount; £18.

HALIFAX.—Fine 3½ h.p. Rex, spray, adjustable pulley, very smart and good; £11 10s., tyres excellent.

HALIFAX.—3 h.p. Rover, 26 by 2¼in. Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

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HALIFAX. — 2 h.p. Minerva, 21 frame, 26 by 2 tyres, good little jigger; £8 10s.

HALIFAX.—Special light low 1905 Rex, 3½ h.p., Rex spring forks; £13.

HALIFAX.—Fine 3½ h.p. Rex, 50 guinea model, spray carburetter, good order; £11 10s.

HALIFAX. — 2 h.p. Humber, spray, special tank, tyres good, well attended to; £9.

HALIFAX.—3 h.p. Lloyds, vertical engine, Chater-Lea, long bars, low seat, 2¼ Palmers; £14 10s.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 100 miles non-stop; £13 10s.

HALIFAX.—3 h.p. M.M.C., vertical engine, trembler coil, goes like a chronometer, fine Palmers; £13.

HALIFAX. — 3½ h.p. Rex, 22in. frame, vertical engine, trembler, good order; snap this; £11 10s.

HALIFAX.—2 h.p. Minerva, mechanical valves, spray carburetter, magnificent climber; only wants seeing; £8 10s.

HALIFAX. — 2¾ h.p. Minerva, spray, accumulator ignition, very efficient mount; £14 10s.

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HALIFAX.—1907 twin Rex, shop-soiled, and unridden, 2¼ tyres, fully guaranteed; £23; don't delay.

HALIFAX.—2¾ h.p. Antoine, spray carburetter, trembler coil, tyres good; bargain, £10 10s.

HALIFAX.—6 h.p. twin Rex, cantilever seat, non-skids to back wheels; £22 10s., or £11 and 3¼ h.p. Rex, surface.

HALIFAX. — 2½ h.p. Coventry Eagle, Buchet engine, vertical, spray, tyres, enamel, and plating excellent; £12.

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HALIFAX.—2¾ h.p. Minerva, mechanical valves, 26 wheels, 2¼ tyres, perfect order and condition; £14 10s.

HALIFAX.—£2 deposit and six monthly payments of 27s. 6d. secures 2¾ h.p. Antoine, 2¾ h.p. Humber, 3 h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 2½ h.p. Buchet, 3½ h.p. Rex; all guaranteed running order.

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HALIFAX Motor Exchange. — Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone 766. Telegrams, Perfection.

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REPLIES to every advertisement on this column must be addressed to Booth's Motor Exchange, Wade Street, Halifax.

MINERVA, 3½ h.p., 1907, spring forks, 2¼in. tyres, shop-soiled only; £25 10s.

QUADRANT, 3½ h.p., 1907, nearly new, 2¼in. tyres, spring forks; £25 10s.—Booth.

QUADRANT, new 1908 model, magneto; liberal allowance for your old machine.—Booth.

FOUR-CYLINDER F.N., magneto; £26 10s.; new lightweight F.N.; cash or exchange.—Booth.

TRIUMPH, 3½ h.p., 1907 model, like new, £35; Vindec twin, magneto, £35.—Booth.

REX de Luxe, black finish, magneto, Roc clutch, twin tyres; £28 10s.—Booth.

REX Twin, spring forks, black finish, specially built for sidecar; £22.—Booth.

MINERVA, 3½ h.p., smart machine, low built, £16 16s.; Fairy, 2¾ h.p., £20.

ANTOINE Twin, 6 h.p., low built, non-skid, nearly new; £22.—Booth.

G.B. Twin, magneto, spring forks, 2¼in. tyres, a beauty, long and low; £26 10s.

ROVER, 3½ h.p., free engine, spring forks, 26in. wheels, smart looking; £12 12s.

CLYDE, 3 h.p., vertical engine, magneto, £12 12s.; 3½ h.p. Excelsior, £10 10s.—Booth.

N.S.U., 3½ h.p., magneto, low built, £22 10s.; twin N.S.U., magneto, £28 10s.—Booth

STEVENS, 4 h.p., low built, long bars, most reliable; £16 16s.; Bat pattern.

CHATER-LEA, 3½ h.p., low built, 26in. wheels, smart; £12 12s.; reliable.—Booth.

KERRY Twin, long and low, £22 10s.; Kerry, 2¾ h.p., low built, £12 12s.

MAGNETO Rex, 3½ h.p., 1906 model, variable speed pulley, little used; £18 18s.

CLEMENT-GARRARD Twin, spring forks, 2¼in. Palmers, two-speed gear, smart; £18 18s.

ARIEL, 3 h.p., low built, vertical engine, £11 10s.; 2½ h.p. Minerva, £9 15s.

LIGHTWEIGHTS, 1¾ h.p., Clement-Garrard, £6 15s.; 1¾ h.p. Minerva, £5 10s. Cycles taken part payment.

LIGHTWEIGHTS.—Minerva, 2 h.p., £6 15s.; Minerva, 2½ h.p., £8 15s.—Booth's Motor Exchange.

LIGHTWEIGHTS.—Quadrant, 1¾ h.p., £6 15s.; Centaur, 2½ h.p., £7 15s.; cycles part payment.

LIGHTWEIGHTS.—Jap, 2½ h.p., £8 5s.; Ormonde, 2¾ h.p., £6 15s.; all guaranteed.—Booth, Wade Street, Halifax.

ALL the above can be seen and tried at Booth's Motor Exchange, Wade Street, Halifax.

4½ h.p. Twin Minerva, Chater-Lea frame, Druid spring forks, 2¼in. Palmer tyres, in first-class order; price, including numerous spares, £27 10s.—Hayward, Skinnergate, Darlington.

TWIN Antoine, 5 h.p., Liberty upholstered sidecar, powerful, fast, good tyres, accumulators, belts, tools, etc.; price, complete, £24; owners buying car.—Sanford, Oatlands, Harrogate.

BAT Twin, 7-9 h.p., and sidecar, all accessories, and spares, £45; Minerva twin, 4½ h.p., both superb condition, £22; trial; take push bike part payment.—Sidney, 41, Green Street, Cambridge.

£9 for a 50 guinea 1905 3½ h.p. Rex, in good running order, with two belts, stand, lamp, horn, toolbag, Bowden lift, Longuemare carburetter, new A Won Clincher tyres, low build; not allowed to ride.—Read, Accarsane, Hook Road, Surbiton.

EVERYTHING DESIRABLE.

you will find in that superb machine, a

5½ h.p. REX DE LUXE.

Fitments—

ROC CLUTCH.	TWIN TYRES.
MAGNETO.	SPRING SEAT.
BLACK FINISH.	GOLD LINES.

Advantages—

Takes a sidecar up any hill.
Handle starting just like a car.
Side-slip unknown with twin tyres.
In traffic can be driven 3 miles per hour.

We supply one for £35 (shop-soiled).
We take your machine in part payment.
We can give instant delivery.
We save your money and patience.
We give you every satisfaction.

A Lovely TWIN REX, £22.

Plenty of power, plenty of comfort (spring forks), and we guarantee you a good machine. We will accept £6 and a decent 1906 3½ h.p. machine; liberal allowances for lesser powered machines. Write us, and you will be agreeably surprised.

A Smart 3½ h.p. LOW-BUILT REX, £16 16s.

Spring forks, will take any hill. We will relieve you of a small amount of cash and your present machine and supply you with above. Write us to-day.

WRITE FOR OUR FULL LIST

of motor cycles and accessories. We are certain to have something you require.

NEW TYRES FOR OLD.

PALMERS. Fully
CONTINENTALS. Guaranteed.

We take your old cover or tube in part payment. State your requirements. Immediate delivery.

SIDECARS.

CASTOR WHEEL. RIGID TYPE.

We have a large stock of Mills-Fulford sidecars. This make **don't** side-slip. They are not jerry-built type. We take your old unsatisfactory sidecar or other goods in part payment. Special inducements to cash buyers. Popular prices. High-class goods.

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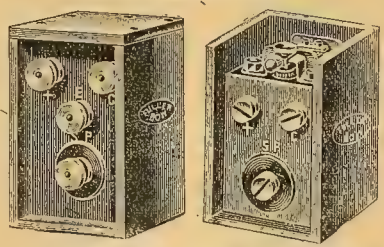
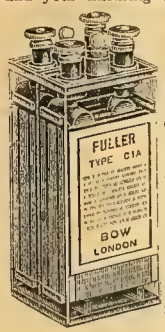


NON-TREMBLER. MIDGET TYPE.	SYNTONIC TREMBLER. 3,000 revolutions.
One cylinder 10/6	One cylinder 17/6
Twin cylinders .. 21/-	Twin cylinders .. 35/-

We make a liberal allowance for your troublesome coil in part payment. Buy a FULLER and your misfiring troubles are over.



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GENUINE FULLERS.

English, not German trash.

C2 type	17/-
Rex type	16/-
Midget type	16/-
Minerva type	17/-
Humber	15/-

Every cell guaranteed. Patent non-corroding terminals. Made to withstand the vibration of a motor cycle. Large stock. Quick delivery. We allow 5/6 for your old accumulator in part payment.

CORONET SEAT PILLARS.

A few shop-soiled to clear at 9/6 each. Vibration entirely eliminated. Low riding position if desired.

BOOTH'S "GRIPSKIN" BELT.

Enormous success. Made from selected parts of hides, and cut to a correct angle. The best belt at present on the market. Quality high, price low. We send on appro. on receipt of P.O.

¾in., 9d., ⅞in., 10½d., 1in., 1/-, 1¼in., 1/1.

Special terms to the trade.
High-class motor cycles wanted for cash.

H. BOOTH Coronet Works WADE ST., ***HALIFAX.***

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MOTOR BICYCLES FOR SALE.

5 h.p. Twin Motor Cycle, Peugeot engine, magneto, cut-out, Roc clutch and two-speed gear, with Montgomery sidecar; £35, nearly new.—Waterman, Hill View, Selborne, Alton, Hants.

WHAT Offers?—Twin-cylinder 4½ h.p., Chater-Lea frame and fittings, very low and long, tanks enamelled red, engine just been overhauled by makers.—Douglas, Idabank, Broughty Ferry.

F.N. Four-cylinder Motor Bicycle, is an ideal machine, fast, flexible, reliable, and the running expenses are low; trials given.—Particulars, etc., from F. Heath, Salford Priory, Evesham.

FOR Sale, four-cylinder Binks motor cycle, 5 h.p., free engine, footboards, bucket seat, most comfortable, reliable and fast, guaranteed; £24; consider exchange.—Whitehouse, 32, Reform Street, Dundee.

FAFNIR 7 h.p. Double-cylinder Water-cooled Engine, Longuemare carburetter, silencer, gear box, as new; £13 10s., or exchange for 1 h.p. good small gas engine. — 61, Grand Parade, Harringay, N.

HANDY Little Jigger.—2½ h.p. Jap lightweight B.S.A., F.N., new Dunlops, handle-bar control, dry battery, accumulator, stand, lamp, horn, belt rim brake, very silent; £13 5s.—Saxby, 339, Brixton Road, S.W.

1907 3½ h.p. Triumph, magneto, condition as new, bought last September, Autoclipse lamp, all spares and tools, Bates' non-skid rear; £35, or nearest.—Triumph, 9, New Union Street, London, E.C.

1908 Pattern Four-cylinder F.N., 4½ h.p., as new, perfect condition, many accessories and spares; owner selling, having purchased car; £40 cash.—Cambridge Automobile Company, 9, Sidney Street, Cambridge.

FOR Sale, Brown, 3½ h.p., splendid condition, Millennium stand and carrier, lamp, and spares, accumulator ignition, spring pillar, ridden 1,200 miles; price £20. — H. Greenwood, The Gables, Sycamore Place, York.

DONCASTER.—Werner, 1¾ h.p., Marconi coil, and Prested accumulator, both new, spray carburetter, suit beginner well; trial by appointment; very reasonable price.—Seen at Corcutt's Garage, Bennitthorpe, Doncaster.

3½ h.p. Excelsior, recently overhauled. Longuemare carburetter, brand new Continental and Peter-Union tyres fitted, splendid hill-climber, and in perfect condition; £13 15s.—Bolsover, solicitor, Stockton-on-Tees.

3 h.p. Motor Cycle, in perfect running order, £10, or offer; 1½ h.p. Minerva engine, spare valves, carburetter, silencer, and coil, good condition, 35s., or offer; wanted, good trembler coil.—Morris, 477, Tong Moor Road, Bolton.

TRIUMPH, late 1906, 3 h.p., magneto, new Palmer, 26 by 2¼ tyres, and tube on back, patent leather magneto cover, full kit of spare parts and tools, in thorough good order; £26.—Hermann, 71, Great Titchfield Street, London, W.

£25, or nearest offer, for 3½ h.p. Quadrant, in perfect condition in every way, complete with Autoclipse lamp, generator, and tools, two sets of plugs; too fast for owner; spring forks.—A., c/o Britnell and Crawter, Ltd., Petersfield.

2 h.p. Minerva, vertical F.N., excellent for beginner, splendid running order, mauve, lined violet, long bars, smart, low, fast, new Dermatine, sleeve throttle, contact breaker, pedals, and footboards; any trial; £9.—Motorist, 173, Camberwell Grove, S.E.

REX Twin, 5½ h.p., in perfect order, Bowden patent exhaust lifter, stand, bag, spare valves, washers, springs, contacts, etc., new belt, £19, or with brand new 1908 Montgomery sidecar, cushion, apron, £26, sell separate; one 26in. by 2in. extra heavy Continental tyre, unscratched, 19s.; 9 feet Stanley-Dermatine belt, ¾in., new, 8s.; Osborne four-speed pulley, new, suit twin Rex or other machine, all fittings, £4.—R. Stansell, Oban House, Taunton.

MOTOR BICYCLES FOR SALE.

VINDEC Special Motors from stock.—Woodman's, Peterborough.

ANGLIAN Motor Cycles, with simplest and most practical two-speed gear.—Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

SIDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London Agents, H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W.

2¾ h.p. Demos, excellent order, good tyres and belt.—F. Knight, Roxwell, Chelmsford.

2 h.p. Minerva, M.O.V., spray, engine perfect, Whittle belt; £7, offers.—Museum, Warrington.

3½ h.p. Antoine, good going order.—Particulars, Sommerville, Linden Avenue, Newport, Fife.

1907 Magneto Triumph, been taken care of and like new; lowest £33.—8,416, *The Motor Cycle* Offices, Coventry.

3½ h.p. Minerva, Ariel sidecar attached, both in splendid condition; £20 cash.—Buckett, Twyford, Berks.

FOR Sale, 3½ h.p. Rex (1907), splendid condition; what offers? — Jolly, Carisbrooke, Fairhaven, Lytham.

5 h.p. Vindec, magneto, spares, perfect condition, with Montgomery sidecar; £30.—Coles, Mill, Selborne, Hants.

VINDEC, 5 h.p., twin, magneto, new May, 1907, very little used; £35.—Land, Stonelea, Victoria Road, Hale.

£14.—Rex, 3½ h.p., perfect condition, hardly soiled; no fault; buying car.—Particulars, 477, Hessle Road, Hull

2½ h.p. Minerva Engine Motor Cycle, Chater-Lea fittings, frame, and tyres new, just built; £28.—Below.

2¾ h.p. Hulbert-Bramley, Minerva engine, Chater-Lea fittings, cut-out; bargain, £15.—Below.

QUADRANT, good working order; bargain, £12.—Below.

PHŒNIX, good working order; bargain, £10.—Below.

1906 3 h.p. Triumph, accumulator ignition; £20.—Below.

1906 3 h.p. Triumph, magneto ignition; £25.—Hulbert-Bramley Motor Co. 96, Upper Richmond Road, Putney.

TRIUMPH, 3½ h.p., as new, unscratched, 1907, lamp, horn, tools, spares, perfect; £34.—Walter Baker, 80, Castlegate, Malton, Yorks.

AGENTS for Triumph, Brown, N.S.U., Roc, etc.; early delivery.—Mellors, Moldgreen Engineering Works, Huddersfield.

3 h.p. Motor (De Dion) and sidecar, two-speed gear, in new condition; photo, £32 10s. — T. Slaughter, Weston-super-Mare.

1907 Magneto 3½ h.p. Triumph Motor Cycle, splendid condition; £32 10s.—No. 9,304, *The Motor Cycle* Offices, Coventry.

2¾ h.p. Kerry, good condition, new tank fitted, very fast machine; £12.—Motor, 7, Lime Street, South Bank, R.S.O.

FOR Sale (Blackpool), 2 h.p. Brown, just overhauled; £8, or take push bike in part payment. — Stanworth, corner Lark Hill.

GLASGOW.—3 h.p. Ryper, long bars, plating and enamelling perfect, complete; £12.—1, May Terrace, Mount Florida.

FOR Sale, 3¾ h.p. Rex, all spares, Bowden band brake, Footprint kit, sound; £18. — Motors, 57, High Street, Camden Town, London.

LIVERPUDLIANS! — Call at 74, Bold Street, and see latest models of Triumph and Roc motors.—Hitchings are the sole agents.

QUADRANT, 1907, 3½ h.p., two accumulators, 2¼ Clinchers, Rich's tube, scarcely used; £27.—Coombes, 737, High Road, Tottenham.

Special Bargain.

2¾ h.p. **HUMBER,** spray carburetter, trembler coil, all accessories, **£8 17 6,** guaranteed in running order.

CASH, CREDIT or EXCHANGE.

3 h.p.	FAIRY, twin, like new	£19 0
3½ h.p.	MINERVA, magneto ignition	22 0
5⅛ h.p.	Magneto Twin REX, 1907	29 0
5⅛ h.p.	REX-DE-LUXE, twin tyres	26 0
4½ h.p.	Twin MINERVA, 1907	27 0
4-5 h.p.	Twin GARRARD, Maxfield	16 0
3½ h.p.	BAT, spring frame, 26in. wheels	18 0
5 h.p.	Twin KERRY, very low	22 0
5 h.p.	Twin PEUGEOT, lovely goer	23 0
3½-4 h.p.	CENTAUR, 26in. wheels	17 0
5½ h.p.	Twin REX, lovely goer	20 0
4 h.p.	ANTOINE, magneto, 1907	22 0
3½ h.p.	BROWN, M.O.V., vertical	17 0
3½ h.p.	1906 REX, spring forks, etc.	15 0
3½ h.p.	1905 REX, spring forks, 26" wheels	13 0
3½ h.p.	TRIUMPH, magneto, 1907	35 0
3 h.p.	TRIUMPH, lovely goer	25 0
3 h.p.	MINERVA, vertical, M.O.V.	12 0
2¾ h.p.	MINERVA, spray, 26" wheels	11 0
2½ h.p.	TRIUMPH, smart goer	12 0
3 h.p.	KERRY, fine machine	12 0
2½ h.p.	JAP, spray, footrests	11 0

LIGHTWEIGHTS, NOW IN FASHION.

1¾ h.p.	MINERVA, spray, 26" wheels	£6 10
2 h.p.	QUADRANT, spray, smart	7 10
2½ h.p.	HUMBER, spray, spring forks	9 0
2½ h.p.	REGAL, vertical, spray, 26" wheels	9 0

TRICARS.

3½ h.p.	MINERVA, M.O.V., fan-cooled	£17 0
3½ h.p.	QUADRANT, Phœnix, two speeds	18 0
5⅛ h.p.	REX, twin engine, two speeds	22 0

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2 h.p.	WERNER, very good	£1 10
3 h.p.	ARIEL engine, powerful	2 19
3½ h.p.	1907 QUADRANT, new, perfect	4 10
3 h.p.	BREVETE, good goer	2 19
3 h.p.	AUTO-MOTOR, fine engine	2 19
3 h.p.	DE DION, fitted two speeds	4 0
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4½ h.p.	ASTER, water-cooled	5 10
7 h.p.	TAYLOR, quite new	7 0
3½ h.p.	QUADRANT, quite new	6 10
3 h.p.	DE DION pattern	2 19

SIDECARS.

Rigid	£3 10	Mills-Fulford, new	£5 10
Montgomery	4 10	British Standard, new	5 0

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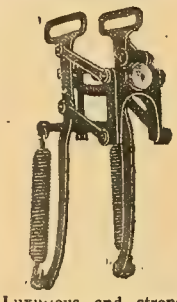
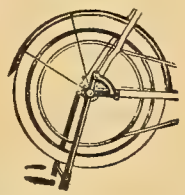


Luxurious and strong. Fit any machine. 10/- each.

200 LYCETT'S "LIGHTNING" STANDS.



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For either 24in., 26in., or 28in. wheels.

Note the price— 4/9 per pair.

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Albion Works, Square Road, HALIFAX.

W. & J.

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Are acknowledged by all to be the best.

WADE & JONES, Ltd., 95, Colmore Row, Birmingham

MOTOR BICYCLES FOR SALE.

TRIUMPHS, 1908, immediate delivery, second-hand Triumphs taken exchange. — Morriss, 139, Finchley Road, Swiss Cottage, N.W.

5½ h.p. Twin N.S.U., two ignitions, two speeds, perfect condition; going cheap.—Particulars, Box 9,375, *The Motor Cycle* Offices, Coventry.

ROC and N.S.U. Agent.—In stock: 4 h.p. Roc, with two-speed gear, 3 h.p., 3½ h.p., and 6 h.p. N.S.U.'s.—Hodgson, 10, Horton Road, Bradford

2½ h.p. Kerry, splendid condition, spray, very fast, tyres almost new, 26in. wheels; a bargain, £10 10s.—Egbert Spearman, Bishop's Stortford.

2¾ h.p. De Dion, Longuemare, new Palmer tyres, good hill-climber, in good order; £12 12s.—Mr. Penley, 158, Canterbury Road, W. Croydon.

FOR Sale, 3½ h.p. Vindec Special, 1907 model, magneto, everything in good order; best offer above £20. — 49, Chapel Street, Southport.

FOUR-CYLINDER F.N., 3½ h.p., 1906, good running order, recently overhauled; £15 10s.; spanners, etc.—J. Stevens, Ewell Road, Tolworth, Surbiton.

6 h.p. Twin Rex, spring forks and seat, trembler and wipe, Continental tyres, excellent condition; £19, bargain. —77, Mitcham Road, Tooting.

FOR Sale, Rex, 4-5 h.p., twin-cylinder, 35 guinea model, in excellent condition; £20, or nearest offer.—E. Ford, 94, Chestergate, Macclesfield.

BAT, 4 h.p. Stevens engine, low, long handles, footboards, powerful, guaranteed perfect condition; £16 16s., no offers.—Gilchrist, Baker, Ayr.

REX, 3¾ h.p., new March, 1906, spring forks, toolbag, two belts, stand, good working order; £12, good condition.—Bamford, Hawthornden, Uttoxeter.

FOR Sale, Brown, 2¾ h.p., late 1906, overhauled, good condition, tyres unpunctured, lamp, stand, etc.; offers. — Enderley, Hainton Square, Grimsby.

MAGNETO, Simms-Bosch, low tension car size, offers; also pair of 28 by 2 rims and covers, fair condition, 22s. —176, Westwood Street, Peterborough.

TRIUMPH, 1906, 3 h.p., magneto, Riche's detachable tubes, first-class condition throughout; nearest cash offer £26. —Garland, 2, The Grove, Church End, Finchley.

4 h.p. Kelecom-Antoine Motor Bicycle, latest pattern, duplex forks, Englebert tyres, brand new; special offer, £20 net cash.—Crypto Car Co., 14, Mortimer Street, W.

MOTOSACOCHE, magneto or accumulator, 1908, new model, Empire typewriter, or collection of stamps, taken in part payment. — Ignatius Knaster, Cambridge.

VINDEC Special Twin, Truffault, and rigid forks, magneto, new tyres, four spare tubes, spares, lamp, horn, in good condition; getting car; £33.—4, Penryn Road, Acton, W.

FOR Sale, 3 h.p. Quadrant, spring forks, F.N. carburetter, studded back tyre, perfect running order; £14 10s.—Watson, jun., Birchdale, Aldersbrook Road, Manor Park.

5½ h.p. Rex Twin Motor Cycle, in excellent order, footboards, cut-outs, spring forks and seat, several spares; £25.—F.B., 129, Nightingale Lane, Wandsworth Common, S.W.

1907 6 h.p. N.S.U., with coach-built sidecar, perfect in every way, exactly as illustraed by makers in March 4th issue of this paper; low price. — Lyne, Whittlesea, Peterborough.

MINERVA, 3½ h.p., like new, not done 600 miles, Mabon clutch, Pullman-non-skid band, rigid sidecar, almost new; accept £24, or sell separate.—2, Burne Street, Edgware Road, London.

2¼ h.p. Rex, 1904, excellent condition, spring forks and saddle, low position, long handle-bars, Price's stand, carrier, tools, and spares; £12.—Thomas, 20, Longridge Road, South Kensington.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—4½ h.p. twin Minerva, 2½in. tyres, standard; £25.

MAUDE'S.—Rex, 1907 model, blue finish, 5 h.p., splendid condition; £22.

MAUDE'S.—Rex, 6 h.p., 2½in. Model de Course Continentals, cantilever seat; £21.

MAUDE'S.—Rex, 3⅜ h.p., spring forks, spray, trembler, 1906 model, a beauty; £15.

MAUDE'S.—Rex, 1905, low built, spray, 26in. wheels; £12.

MAUDE'S.—Rex, 1904, Phœnix two-speed gear, suit sidecar; £13.

MAUDE'S.—Rex, 1904, 3½ h.p., in very good condition; £10.

MAUDE'S.—Rex, 3 h.p., vertical, beautifully enamelled; £7.

MAUDE'S.—Werner, twin-cylinder, 3½ h.p., 26in. wheels, low built, spring forks; £18.

MAUDE'S.—Clarendon, 3 h.p., vertical engine, beautifully enamelled in green; £10.

MAUDE'S.—Fafnir, 3 h.p., 26in. wheels, long handle-bars, low built; £12.

MAUDE'S.—Centaur, 3½ h.p., vertical, B100 saddle, low built, free engine, 26in. wheels; £15.

MAUDE'S.—Vindec Special, 2¾ h.p., magneto (high tension), low built, 26in. wheels, splendid condition; £17.

MAUDE'S.—Minerva, 2½ h.p., spray carburetter, very good tyres; £10.

MAUDE'S.—Jap, 2½ h.p. engine, like new, £8; Cunard, 3½ h.p., £10.

MAUDE'S.—Quadrant, 2 h.p., £6; Antoine, 2 h.p., £6.

MAUDE'S.—Mitchell, spray carburetter, good tyres; special price £5.

MAUDE'S.—Fafnir, 2½ h.p., £10; Minerva, 2 h.p., spring forks, £9; another, £8.

MAUDE'S. — Ariel lightweight, 26in. wheels, 2½ h.p., £10.

MAUDE'S. — Griffin, 2 h.p., low built, 26in. wheels, vertical engine, belt drive, condition like new; £12.

MAUDE'S.—Bayliss, 3½ h.p.; £10; splendid puller.

MAUDE'S.—Noble, 3 h.p., spray, 26in. wheels, low built, perfect order; £10.

MAUDE'S.—De Dion, vertical, 2¾ h.p., long handle-bars, spray carburetter; £10.

MAUDE'S.—Singer, 2 h.p., magneto, non-skid to rear; £8.

MAUDE'S.—Ormonde, 2 h.p., spray, very decent little machine; £7.

MAUDE'S.—Twin Minerva, 7-8 h.p., just as per makers' catalogue, 1908 model, guaranteed sold for no fault, only owner cannot now accept delivery; £36, spot cash, a bargain.

MAUDE'S Guarantee every motor above to be in perfect running order throughout, and in most cases the engines have been thoroughly overhauled, and we guarantee every one sound.

MAUDE'S Motor Mart, Powell Street, Halifax. Sole agents for Minerva motors.

3½ h.p. Quadrant, 1906 pattern, but very little used, and as new, enamel and plating perfect, spring forks, tyres unscratched, very fast and splendid hill-climber, with all spares, stand, etc.; price £25, no offers.—G.G., 34, Cambridge Place, Paddington, W.

3 h.p. Motor Cycle, vertical engine, loop frame, new Longuemare, long handle-bars, Brooks B100, Bassee-Michel horn, lamp, spares, splendid running condition; reason selling, purchased 1908 Triumph; price £14; trial.—John Tipper, Leveson Street, Willenhall.

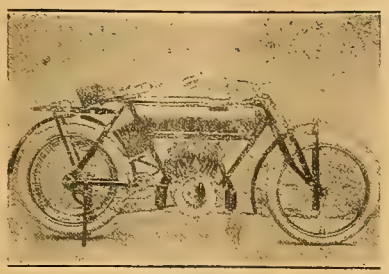
FOR Sale, Marlborough, 7 h.p. Peugeot engine, Chater-Lea frame, Longuemare carburetter, Simms-Bosch magneto, handle-bar control, low machine, not run 100 miles; too fast for owner, reason of selling; 42 guineas.—Crowe, 36, Willesden Lane, Kilburn, N.W.

FOR EASTER

You will be wanting your new motor cycle. Therefore take our advice, order now. We allow the finest prices for old machines in part exchange.

Let us quote you for exchange.

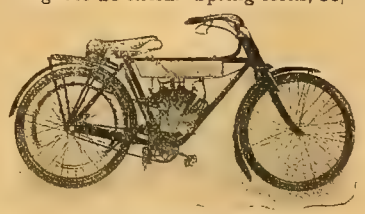
MINERVAS AND MOTO-REVES our speciality.



MINERVA.

2¾ h.p... ..	£29	4½ h.p... ..	£39
3½ h.p... ..	32	7-8 h.p. ..	45

Magneto £5 extra. Spring forks, 50/-



MOTO-REVE.

2 h.p. Lightweight, magneto, twin-cylinder .. .. 35 gns.

Any other make quoted upon request.

TRICARS.

Garrard tricar, three-speed, water-cooled	£30
Riley, 4½ h.p., two-speed, water-cooled	35
Rex triette, 6 h.p., twin-cylinder ..	23
Humber tricar, chain drive	15
Aster, 2¾ h.p. tricycle	5
De Dion, 2¾ h.p. tricycle	6
De Dion quad, two-seater	7

New models ready for delivery.

2¾ h.p. Minerva	£29
3½ h.p. ,, ...	32
4½ h.p. ,, ...	39
16 h.p. Gobron-Brillie car, four speeds and reverse, just being thoroughly overhauled..	£100

ACCESSORIES.

2½ Jap engine and Long. carburetter	55/-
Osborne four-speed, perfect ..	55 -
Osborne free engine	27 6
Electric horn attachment	5/-
Salsbury car headlights, pair ..	£5

"STRATEX" Belting.

⅞in.	10 6
1in. (4 ply)	15 6
1in. (5 ply)	17 6

per 8ft. 6in. lengths.

CONTINENTAL TYRES.

26 × 2in.	24 3	28 × 2in.	25 6
26 × 2¼in.	28/9	28 × 2¼in.	30/-
26 × 2½in.	33/-	28 × 2½in.	35/3

3/- allowed on old covers, and 1/6 on old tubes in part payment. Immediate delivery guaranteed.

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Powell Street (behind the Victoria Hall,) **Halifax.**

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2½ h.p. Clement, two-speed gear, perfect. —C.G., Service Co., High Holborn.

3½ h.p. Motor, new Palmer cords, plain coil, footboards, Longuemare; £12. —Below.

2¾ h.p. Werner, tyres, plating, and enamelling excellent, weight 100 lbs.; £10.—Below.

3½ h.p. Lloyds, 2½in. tyres, good condition; £12, or offers.—Horsfall, Stannary, Halifax.

JUST Arrived.—2½ h.p. lightweight Rex, unpacked; £24.—77, Wigan Lane, Wigan.

3 h.p. Fafnir, low, Clinchers, F.N.; £13; good order.—122, Culford Road, Kingsland.

1¾ h.p. Minerva, wants slight repairs; £5 to clear.—63, Forest Lane, Stratford, E.

TWIN Rex, 5-6 h.p., cantilever, new condition, fast, and reliable; £15.—H. Short, Llanduduo.

2¾ h.p. Werner, 26in. Clinchers, spray, overhauled; genuine bargain, £8 15s.—Meredith, Over Winsford.

3½ h.p. Brown Engine, in long, low Chater-Lea frame, good condition; £11.—28, Normanton Road, Croydon.

SALFORD.—2½-3 h.p. genuine Lloyds, 26 by 2 tyres, low built, and light; £9. —Tobacconist, under Regent Theatre.

EXCELSIOR, 2¾ h.p. Minerva, Longuemare, Watawata, Clinchers, perfect order; £12.—1, Townley Road, Dulwich.

BROWN, 2¾ h.p., splendid condition, Palmers, lamp, etc., low position; £14.—Binns, 132, Ferme Park Road, Hornsey.

£6, bargain.—2¾ h.p. Antoine, on Chater loop frame, 26in. wheels, in fast going order.—49, Portnall Road, Paddington.

QUADRANT, 3 h.p., perfect condition; £8 10s.; take two-speed cycle, 24in., in exchange.—Williams, Cycle Depot, Corwen.

BROWN, 2¾ h.p.; £12; just overhauled, low position, grand condition; seen any time.—Rey, 5, Heath Street, Hampstead.

2¾ h.p. Kerry, Palmers, spring seat, perfect order, complete; £8 10s., or close offer. — 5, Mansion House Street, Hammersmith, W.

6 h.p. Twin Chater-Lea, 2½ Dunlops, latest model, brand new; £25, cost £45.—F. Robertson, 49, Jeffries Road, Clapham, S.W.

2 h.p. Minerva, M.O.V., Chater-Lea fittings, new Palmer tyre, in splendid condition; £7 10s.—Barker, opposite Station, Worthing.

QUADRANT, 3 h.p., perfect order, large horn, stand, complete; 15 guineas.—Postmaster, Bideford. Seen, tried Elliott's Motor Works.

2½ h.p. Jap, lightweight, new engine and belt, Fafnir carburetter, guaranteed in good order; £7 10s.—Hart, 13, Leonard Street, Hull.

TRIUMPH, 3 h.p., Palmers, Watawata, stand, carrier, spares, recently overhauled, splendid running order; £22.—Everingham, Pocklington.

2¾ h.p. Genuine De Dion Bouton, Longuemare, copper tank, in splendid condition and running order; £11.—M., 39, Southcroft Road, Tooting.

TRIUMPH, 3½ h.p., late 1907, magneto, splendid condition, studded back, spring forks; make appointment; £34.—F. S. Hodsoll, Orpington Mill, Kent.

LONDON. — Genuine 2 h.p. Minerva, Chater-Lea, Longuemare, Dunlops, do 30, guaranteed perfect; £6 10s.—Dew, 12, Bruton Street, Piccadilly, down steps.

N.S.U., 6 h.p., twin, magneto, two-speed, 24in. wheels, perfect condition, spares include new belt and contact breaker for magneto, £40, or near offer; also detachable forecar for same, coach-built, good order, two lamps and generator, car horn, £9.—G. H. Watson, High Row, Darlington.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Holds the finest and largest stock of second-hand cycles in the world. 300 to select from.

HALIFAX.—Genuine twin Rex, guaranteed, spring forks, low built, goes like a flash; £16 given for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex in part payment.

HALIFAX. — 3½ h.p. Minerva, spray, girder forks, 26 by 2¼ Clincher A Won, begging at £16 10s.

HALIFAX.—3½ h.p. Phelon and Moore, magneto, spring forks, low frame, two-speed gear, climbs anything; £34.

HALIFAX.—3½ h.p. 1907 Rex, magneto, Crypto two-speed gear and Montgomery flexible sidecar; complete, £28 15s.; without sidecar, £24.

HALIFAX.—3½ h.p. light low Rex, spring forks, 26in. wheels, Longuemare; £12 17s. 6d.; snap this.

HALIFAX. — 6 h.p. twin Rex, 26 by 2¼ Clincher A Won, spring forks; £22; £17 allowed for powerful 1907 machine.

HALIFAX. — 1906 3½ h.p. Rex, specially good condition, 26 by 2¼ Clinchers; £16 5s.

HALIFAX. — 5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £27 10s.; nearly new.

HALIFAX.—2 h.p. Humber, spray, trembler, chain drive, splendid climber; cheap, £9 10s.

HALIFAX. — 3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15 15s.

HALIFAX.—3½ h.p. Simms, vertical engine, magneto ignition, easy starter, reliable; £17 10s.

HALIFAX. — 1907 twin Rex, almost equal new, no complicated speed gears required; £22; buy now, to-morrow may be too late; allow £16 for 3½ h.p. Rex.

HALIFAX. — 4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £18 10s., perfect order.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, and sidecar; £27 10s.

HALIFAX. — 5 h.p. Rex, Longuemare, trembler coil, Clincher tyres, Fishback belt; no offers; £16 15s.

HALIFAX.—1907 Rex de Luxe, magneto, twin tyre, Roc clutch, spring forks; £27 10s.; exchange wanted.

HALIFAX. — 1907 N.S.U. Lightweight, magneto, almost as new, stand, splendid climber; £22 10s.

HALIFAX.—Fine twin Rex, Greenwood's Leeds-London record holder, registered, guaranteed; £22 10s.

HALIFAX. — 1907 5½ h.p. twin N.S.U., spring forks, 2½ tyres, regular Beau Brunell, lovely machine; £27 10s.

HALIFAX.—6 h.p. twin Antoine, 1907 machine, spring forks, without fear or favour; £25.

HALIFAX.—3 h.p. Quadrant, spray carburetter, spring forks, good reliable mount; only £13.

HALIFAX.—1906 3½ h.p. Minerva, 26 by 2¼ tyres, in excellent order, non-skid to rear; £19 19s.

HALIFAX. — 2½ h.p. Magneto Singer, chain drive, good running order, vertical engine; £9 10s.

HALIFAX.—3 h.p. Humber, chain drive, spray, long handle-bars, re-enamelled and plated, like new; £12.

HALIFAX.—1907 6 h.p. twin Rex, only done 100 miles, perfect; £22.

HALIFAX.—Special 7 h.p. Peugeot, twin-cylinder, nearly new, a regular flier; £30.

HALIFAX Motor Exchange. — Cash, exchange, or extended payments. See Tricar list. Telephone, 766. Telegrams, "Perfection." High-class machines purchased for prompt cash. — 16, Westgate, Halifax.

2 heads are better than 1
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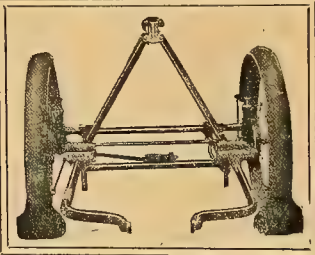
The Phœnix attachment will convert your motor bicycle into a safe and pleasurable three-wheeler for single or passenger work.



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Agents for South-West of London—

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EARLY DELIVERIES.

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RUSSELL GARAGE & MOTOR WORKS, 17, Colonnade, London, W.C.

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MOTOR BICYCLES FOR SALE.

2 h.p. Kelecom, good running order; bargain, £5.—62, South Street, Romford, Essex.

3½ h.p. Minerva and rigid sidecar; £18 10s., or separate; after 6.—31, Landor Road, Stockwell.

£5.—2¾ h.p. Bournville, vertical, spray, trembler, new 26in. Dunlops.—Watkins, Fruiterer, Coventry.

1906 3½ h.p. Quadrant, magneto, splendid condition.—Particulars, Agg, Langton Herring, Dorchester.

3½ h.p. Minerva; £16; spring forks, perfect working order.—Alfred, 26, Kildas Road, Stoke Newington.

1907 Triumph, new in August, good condition; £36, or near offer.—H. Gartrell, Chapel Street, Penzance.

TRIUMPH, 1907, magneto, absolutely faultless throughout; £31; approval anywhere.—Parker, Melbourne, Derby.

3½ h.p. Rover, condition as new; trial; £17 10s.; low built, or exchange tricar.—7, Upton Lane, Forest Gate.

£12.—Fafnir, 3 h.p., excellent condition. —Seen Seé Band Co., 5, Denmark Street, Charing Cross Road, London.

2 h.p. Monarque, Longuemare, non-skid, trembler; ready for road; £9; no room.—167, Railton Road, Herne Hill, S.E.

2¾ h.p. F.N., a grand machine, long low bars, and seat well over back wheel; £12 12s.—Bunting, Wealdstone.

BAT, 3½ h.p., in grand condition, £15 15s.; Triumph-Minerva 1¾ h.p. lightweight, £8 8s.; both real bargains. — Bunting, Wealdstone.

3 h.p. Humber, chain, grand climber, in thorough order, spare tyre; £9 10s.—147, Finborough Road, Earl's Court, S.W.

TRIUMPH, magneto, late 1906, perfect condition and running order; £25. —Jarrett, 18, Prestonville Terrace, Brighton.

2 h.p. Ariel-Minerva Motor Cycle, recently overhauled; £9, a bargain.—Apply, Motor, "Chronicle" Office, Doncaster.

1907 N.S.U., 3¾ h.p., magneto, two-speed gear, free engine, footrests, etc., perfect condition; £35.—W. Francis, Shaw Lane, Leeds.

SINGER, 3½ h.p., magneto, spring forks, accessories, excellent condition; price £25, a bargain.—W. S. Gillespie, Malpas, Cheshire.

REX, 1906, excellent condition, new Clincher back, spring forks, lamp, horn, foot pump, stand; £15.—Lisney, Skinners Lane, Ashtead.

VINDEC Special, 3½ h.p., Truffault spring forks, magneto, splendid condition; £22.—8, Barrett Street, Manchester Square, London.

3½ h.p. Quadrant, 1906, little and carefully used, splendid condition; £20; appointment.—Hart, 57a, Oakmead Road, Balham, S.W.

2 h.p. Minerva, spring forks, long handles, recently overhauled; £13; particulars and trial.—H. Martin, Park Street, St. Albans.

3½ h.p. Brown, Clincher tyres, A Won, spare cover, guaranteed in perfect condition, like new; £23. — Phillips, Queen's Road, Chorley.

2¾ h.p. Minerva, spray, Dunlops, light, reliable, perfect condition, spares, tools; trial; £12 10s. — 53, Grange Park Road, Thornton Heath.

NEW Phelon and Moore, 1908 model, 2¾ h.p., Grose non-skid on back wheel; take £45 cash; giving up motoring.—8, Oxford Road, Southport.

5 h.p. Vindec Special, Truffault suspension, spare adjustable pulley, lamp, horn, and tools, perfect condition; £30.—Motor, 1, Rose Place, Oxford.

3½ h.p. Brown Motor Cycle, new 1907, in perfect order, climb any hill; cash, or part exchange for lower power. —Sone, Dove Walk, Uttoxeter.

3 h.p. Rex, in sound condition, two accumulators, new coil and wiring, spares and lamp; £10.—Thursby, 53, Grand Parade, Harringay, N.

MOTOR BICYCLES FOR SALE.

TRIUMPH, 1907, 3½ h.p., magneto, new condition, spare tyre and tube, horn, lamp, etc.; £33, or near offer.—Motorist, 25, Northfield, Bridgwater.

1¾ h.p. Minerva, spray, girders, low, 26in. wheels, Bowden and coaster, average 20, climbs well, good condition; cheap, £6 cash.—15, Thane Villas, London, N.

MINERVA Motor Bike and Sidecar, complete; bargain, £24; trial any time; will take nearest offer; only wants seeing.—36, Stroud Green Road, London, N.

2¾ h.p. Kerry Motor Cycle, scarcely ridden, good hill-climber, detachable non-skid chain and accessories; £16.—No. 9,425, *The Motor Cycle* Offices, Coventry.

2½ h.p. Universal, engine and carburetter perfect, £2; stand and carrier, 4s.; 8 feet of ⅜in. Perry chain belt, 3s.—Stevens, 4, Goldhawk Mews, Shepherd's Bush.

RARE Bargain — 3½ h.p. latest brand new Clarendon, unridden, guaranteed perfect; £21, complete, cost double; approval.—Sheldon House, Victoria Road, Coventry.

N.S.U., 3¾ h.p., magneto, with accessories, new April, 1907; cost £50, and travelled 700 miles, as new, £20.—Waldron, 15a, Inglethorpe Street, Fulham, London.

VINDEC Twin, late 1907, two speeds, Whittle belt, carrier, horn, watch, perfect condition; cost £65, lowest £39.—Bridgman, c/o Priest, 16, Hollowav Road, London.

ARIEL, 2½ h.p., Palmer tyres, spare belt, etc.; cost £40, nearly new; what offers? Must be sold, having bought car.—Deards, 27, Benslow Road, Hitchin.

BAT, 2¾ h.p. De Dion engine and carburetter, spring frame, very fast, condition perfect throughout; £17 10s., absolutely lowest.—Enderby, Spilsby Road, Boston.

F.N., four-cylinder, perfect condition and running order, fast, powerful, and reliable, footboards, and all accessories, many spares; £20.—Monzie, Cranbrook Road, Ilford.

FOR Sale, 2 h.p. motor cycle, Minerva engine, M.O.V., Chater-Lea fittings, Premier accumulator, Dunlop tyres, new last season; £10 10s.—Waimes, 41, Tindall Street, Scarborough.

2¾ h.p. Minerva, standard machine, 1907, very little used, and in nearly new condition; £16.—Seen at Messrs. Sully's, 12, Old Town, Clapham. Gylee, 2, Lauriston Gardens, Clapham.

3½ h.p. Humber Motor Cycle, suitable for forecar or sidecar, Dunlops, in good running order; must be sold; cheap for cash.—Robinson, 16, Upper Ground Street, Blackfriars, London.

3½ h.p. 1907 Triumph, not ridden 700 miles, magneto, spring forks, Brooks saddle, condition as new; owner has bought car; £35.—S.C.D., 152, Adelaide Road, S. Hampstead, London.

5 h.p. Twin Kerry, Chater-Lea, long handles, Longuemare carburetter, spring forks, footboards, in perfect condition; £18, or nearest offer.—Saunders, 34, South Street, Eastbourne.

3½ h.p. Humber, very little used, quite equal to new, free engine, chain drive, Dunlops, all accessories and spares; cash price £18.—Banks, Council Offices, Hendon, London, N.W.

ROC, 4 h.p., standard Military Model, free engine, single gear, magneto ignition, absolutely new, as received from makers, late 1907, cancelled order; £35.—Hartley Clegg, Motors, Burnley.

2¾ h.p. F.N., spring forks, belt rim brake, Clincher A Won, 26 by 2¼ tyres, Dermatine, low, splendid condition, £14; spare accumulator, 6s.—Dudley, St. Stephen's Vicarage, St. Albans.

1907 Triumph, magneto, bought August last, run about 500 miles, not ridden since September, Brooks studded tyre, perfect condition, horn, etc.; £33.—Doctor Griffith, Milford Haven, South Wales.

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Wauchope's will accept any number of second-hand machines in part payment for new models, as Triumphs, Vindecs, Quadrants, N.S.U.'s, Rocs, Minervas, Motosacoches, F.N.'s, Moto Reves, Ariels, Browns, etc.

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MOTOR BICYCLES FOR SALE.

FOR Sale, Light Clement-Garrard, with two-speed gear, and Fairy twin for sale; what offers? Both have not done 500 miles each.—Address, Dolor, Ll,884, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

2¾ h.p. Kerry Motor Cycle, splendid running order, reliable, new belt, horn, stand, toolbag, some spares; seen evening; 10 guineas cash.—Miller, 46, Glenloch Road, Haverstock Hill, London, N.W.

TRIUMPH, 3½ h.p., late 1907, only ridden 600 miles, condition as new, with lamp, horn, spares, etc.; £36, or reasonable offer; buying car.—Wildman, Fairfield, Northumberland Road, Leamington.

3½ h.p. Genuine Minerva, 1907, equal new and unpunctured, non-skids both wheels, twin accumulators, exceedingly fast and powerful, and open to any test; 17 guineas only.—R. Barnes, Kingsclere, Newbury.

M.M.C., 3½ h.p., new, only been ridden to tune up, Bosch H.T. magneto, 2½in. tyres, all as advertised, perfect condition, splendid hill-climber; any inspection or trial.—Bracher, Redcliff Street, Bristol. Getting car.

4½ h.p. Riley, two speeds, water-cooled, foot clutch, car tyre to back, Parsons non-skid, all spares, starts like car, in perfect condition; £36, or exchange lightweight and cash.—Myrtle Villa, Oliver Road, Leyton.

3 h.p. Excelsior, low machine, Duplex forks, Longuemare carburetter, plated rims, Bates non-skid back, Dunlop front, long handle-bars, in good going order; £13 10s.—4, Frances Street, Artillery Place, Woolwich.

3 h.p. Fafnir, Chater-Lea frame, long bars, low saddle, B.B. carburetter, studded non-skid on back, very powerful and fast, complete with stand, numbers, etc.; £13.—Stevens, 4, Goldhawk Mews, Shepherd's Bush.

2½ h.p. Automotor, Chater-Lea throughout, tyres and belt as new, just been re-enamelled and engine re-bushed, reliable and powerful; £10, or exchange good push bike and cash.—F. E. Smith, 239, Harrow Road, London.

N.S.U. Lightweight, magneto, girder forks, N.A.B. pillar, new spare exhaust, inlet, and belt, horn, lamp, number plates, etc., new condition, guaranteed, not ridden 500 miles; £22, no offers.—13, North Road, St. Helens.

4½ h.p. Four-cylinder F.N., late 1907 model, magneto, in perfect order and condition, back wheel specially built strong for sidecar; £30, no offers; seen Muswell Hill by appointment.—61, Curtain Road, E.C. N.T., 6694, Central.

4½ h.p. Jap, Chater-Lea frame, chain drive, Brown Bros.' two-speed gear and free engine, 2½ Palmers, Brooks non-skid, drip feed lubrication, footboards, take sidecar, practically new; £37 10s.—15, Mount Ephraim, Tunbridge Wells.

3 h.p. Clyde, Bosch magneto, Longuemare carburetter, Brooks B90 saddle, Clincher tyres, New Departure coaster, low, long handle-bars, just overhauled and enamelled; owner going abroad; £15.—Dyer, 14, Boro, London Bridge.

MANCHESTER.—3½ h.p. Centaur, Longuemare, lamp, spares, and inner tube, two accumulators, good tyres, perfect condition, ready for road; inspection invited; £13 10s.; only been 500 miles.—Allen, Holly Bank, Whitefield, Manchester.

3 h.p. Kerry Modele de Luxe, long bars, footboards, very low, F.N. carburetter, Watawata belt, Bassee-Michel trembler coil, B90 saddle, new Clincher tyre and tube on back, guaranteed perfect condition; £12 12s.—R. Martin, 31, Adelaide Square, Windsor.

3½-4½ h.p. Brown, 83 by 90 mm., almost new, magneto, spring forks, spring footrests, variable pulley and every refinement, finest hill-climber extant; lately cost over £50; the best machine is the cheapest; compulsory sale, accept £27.—R. Barnes, Kingsclere, Newbury.

MOTOR BICYCLES FOR SALE.

STOCKPORT.—1907 4 h.p. N.S.U., magneto, two-speed gear, almost new; 30 guineas.

STOCKPORT.—1907 Roc, magneto, 2½in. Hermetic tyres; 31 guineas.

STOCKPORT.—Midget Bicar, 1907, 3 h.p. Fafnir; 19 guineas.

STOCKPORT. — 1908 Fairy Lightweight, 3 h.p., twin, perfect; 20 guineas.

STOCKPORT.—Twin Minerva, 2½in. Continentals, uncut; 24 guineas.

STOCKPORT.—Midget Bicars, the sensation of the Manchester Show; send for new illustrated catalogue, and arrange trial run.—Lund and Davies, Heaton Lane.

WERNER, 2 h.p., light, low, good condition; £8, offers.—24, Radnor Road, Harrow.

FAIRY, 2½ h.p., two cylinders, weight 75 lbs., perfect; £16.—Morris, photographer, Bourne.

TRIUMPH Motor Cycles.—Agents, Bright and Hayles, Camber Motor Works, Church Street, Camberwell.

PEUGEOT, 2¾ h.p., new last August; £18; seen by appointment.—146, Wanstead Park Avenue, Manor Park.

CENTAUR, 3½ h.p., mechanical valves, low, almost new; £15, offer.—41, Skelbrook Street, Earlsfield.

3 h.p. Quadrant, spring forks, tyres as new, spares, numbers, excellent condition; £14.—Jennings, High Street, Bromsgrove.

2¾ h.p. Werner, Longuemare, long bars, low position; bargain, or exchange with cash for 3½ h.p.—Powell, Park, Llanelly.

3 h.p. Scout, Longuemare, Clincher, stand, good climber, long bars, perfect order; £12 15s. cash.—Adams, Cranborne, Salisbury.

MOTOSACOCHE, month old, hardly ridden; unforeseen circumstances compel sale; £26.—9,427, *The Motor Cycle* Offices, Coventry.

4 h.p. N.S.U. Twin, magneto, brand new, price £50, accept cash £25 and modern single-cylinder.—Arnold, 38, Summer Row, Birmingham.

2½ h.p. (Robinson and Price), good order and condition; 10 guineas; call Saturday afternoon.—Oliver, 146, Eglinton Road, Plumstead, S.E.

5 h.p. Twin Kerry, Chater-Lea frame, Fuller's syntonic coil, all latest improvements, long bars, low seat, etc.; £22. —24, Gwendolen Avenue, Putney, S.W.

1½ h.p. Minerva, latest pattern lightweight frame, low, just been overhauled; £7 10s., or nearest offer, bargain.—Jeffery, 123, Alscot Road, Bermondsey.

2¾ h.p. Minerva, splendid order, new Palmer cord back, variable pulley, B100, footrests; £15. — R., 25, North Audley Street, Grosvenor Square, London.

BEAUTIFUL 3½ h.p. Motor Cycle, best make, Palmer cord tyres, new, equal any Triumph; give 100 mile trial; £16 10s., great bargain.—T., 42, Forest Lane, Maryland Point.

1907 4½ h.p. Four-cylinder F.N., in absolute new condition, unscratched, guaranteed perfect, Brooks B100, all tools, etc., 2½ tyres; lowest £29 10s.—186, South Lambeth Road, S.W.

£5.—Motor Cycle, less engine only, B.S.A. frame, 26in. by 2¼in., Clinchers, etc., suit 2-3½ h.p. inclined engine; a bargain; accept cycle and cash, or engine.—5, Oakdale Road, Forest Gate.

3 h.p. N.S.U., automatic or mechanical valves, 2½ tyres, as new, accumulator ignition, splendid order, bears 14 stone on compression; bargain, 14 guineas; seen any time.—119, South Lambeth Road, S.W.

QUADRANT, 3½ h.p., spring forks, Palmers (2½), new rubber belt, 1907 machine, in perfect condition, Acetyphote, horn, valves, numbers; ready for the road; seen in London if necessary; £18. —Waterman, Chorleywood, Rickmansworth.

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2¾ h.p. Minerva, re-plated, etc., £15; engine only 3¼ h.p. Auto, magneto, carburetter, silencer, etc., £10; perfect condition; offers accepted.—Motor, 176, Mitcham Road, Tooting, S.W.

3 h.p. Rover, Chater low No. 6 frame, Bassee-Michel coil, Dunlop tyres, everything nearly new, only built up in January, 1908; must sell; £25 10s., or offer.—73, Church Street, Camberwell, S.E.

SPECIAL White 6 h.p. N.S.U. Twin, magneto, very low, fast, easy starter, spare valves, pulleys, tyre, butted tube, magneto parts, exhibition hill-climb by appointment.—H., 11, Apsley Terrace, Acton.

TWIN Norton, 3½-4 h.p. Peugeot engine, low built, Druid spring forks, B100 saddle, stand, Marconi coil, Acetyphote lamp, horn, tools, nearly new; £30, or nearest. — Sprunt, 138, London Road, Kingston, Surrey.

5 h.p. Twin Rex, winner Buxton Hill-climb, brand new Dermatine belt and spare Whittle, new Fuller syntonic coil, thumbslide control, electric horn, stand, spares; approval; £19.—C. Lloyd, Sherburn, Ramsgate.

3½ h.p. Motor Bicycle, first-class makers, two speeds, free, chain drive, magneto, 2½ Palmers, nearly new condition, grand passenger machine; take lightweight part; £25.—35, Greenleaf Road, Walthamstow.

MINERVA 2 h.p. Lightweight, specially fitted up, exceptionally good condition, Palmer tyres, as new, many extras; £12 12s.; could accept three-speed cycle part payment.—G.B., 39, High Street, Marylebone, London.

3½ h.p. Quadrant, 1906-7, perfect condition, spring forks and pillar, footrests, stand and carrier, accessories, splendid tyres, Palmer cord on back wheel, hill-climb winner; £25.—E. H. Crailsham, Pangbourne, Berks.

1907 3½ h.p. Minerva, spring forks, practically brand new, little used, magnificent condition throughout, crawl in traffic, climb a steeple, wonderful machine; absolute bargain, £20.—Motorist, 5, New Norfolk Street, Shoreditch, London.

GOODWIN Motor Cycle, 3½ h.p. White and Poppe engine, Chater-Lea fittings, low built, up-to-date, and most reliable, equal to new; £25; exchanges entertained; agents for Triumphs. — Matthews Bros., 96, West Green Road, Tottenham. 'Phone, 1722.

6 h.p. Ariel-Jap Twin, Dunlop tyres, Whittle belt, B. and B. carburetter, Brooks saddle, Liberty stand, brand new; listed at 45 guineas; exchange for tricar, water-cooled, two-speed, out of repair not objected to; cash adjustment.—Page, 74, East Hill, Dartford, Kent.

EDINBURGH. — Alexander's Motor Exchange, 110, Lothian Road, the largest variety and stock of motor cycles in Scotland; agents for Quadrant, Griffon, Rex, N.S.U., Adler, Roc, Minerva, Vindec, and Moto-Reve motors; repairs, spare parts; exchanges, easy payments.

3⅜ h.p. Rex, 1906, spring forks, 26 wheels, splendid hill-climber, excellent going order, two tubes and back cover, new, Stanley-Dermatine belt, new, many improvements, abundant spares, plugs, belt, etc.; registration transferred; first cheque £14 10s.—Jones, Hendre, Penprys, Pwllheli.

TWIN-CYLINDER Roc, clutch, two-speed gear, magneto, new Brooks non-skid, new Stanley-Dermatine belt, acetylene headlight, horn, tools, etc., bicycle almost new, also brand new Mills-Fulford Castor wheel sidecar fitted, splendid touring combination for Easter; £48, bargain; got car.—Apply, Armour, Berkeley, Glos.

MANCHESTER and District. — 3½ h.p. 1907 magneto Triumph; this machine is in excellent condition, and has been well taken care of, the engine was recently overhauled by the makers and put in perfect running order, the tyres, enamel, and plating are all good, and the machine can be inspected and the price obtained on application to the Triumph Cycle Co.'s Depot, 160, Deansgate, Manchester.

TRICARS FOR SALE.

TRICARS.—Rexette twin, 10 h.p., special finish, open frame, seats three; £45 10s.

TRICARS.—Rex Triette, twin-cylinder, magneto, spring seat, four speeds, smart; £32 10s.

TRICARS.—Derrick, 4½ h.p., chain drive, fan-cooled, free engine, coach-built; £16 16s.

TRICARS.—Trent, 4 h.p., open frame, wheel steering, two speeds, water-cooled; £25 10s.

TRICARS. — Humber, 4½ h.p., water-cooled, two speeds, Phelon and Moore, coach-built; £20 10s.

TRICARS.—Rexette, 5½ h.p., open frame, wheel steering, two speeds; £28 10s. —Booth.'

BOOTH'S Motor Exchange have the best and largest selection in Halifax.—Telephone, 198Y.

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3¼ h.p. Humber Tricar, splendid engine; £15 cash.—Wauchope's, 9, Shoe Lane, London.

4½ h.p. Automotor Tricar, Chater-Lea, Palmers, perfect order; £20. — 1, Townley Road, Dulwich.

3½ h.p. Automotor Tricar, Chater-Lea frame, Longuemare, splendid condition; £12.—F. Piner, Colnbrook, Slough.

ZENITH Bicar, with forecar attachment, two speeds, free engine, extra wheel; lot £30.—Genn, Gap Road, Wimbledon.

2¾ h.p. Kerry Tricar, powerful engine; £10 10s.; make a genuine runabout.—Wauchope's, 9, Shoe Lane, London.

HALIFAX.—6 h.p. twin Antoine tricar, Chater-Lea, a real gem, open frame, three speeds, wheel steering, chain drive, foot clutch; £39 10s.

HALIFAX.—5 h.p. Humber tricar, two speeds, open frame, wheel steering, almost as new; £45.

HALIFAX. — Quadrant Carette, 6 h.p., open frame, wheel steering, two speeds, coach-built, latest model, £35, cost £100.

HALIFAX. — 6 h.p. twin-cylinder Advance tricar, wheel steering, only used for trials; bucket seat; £35.

HALIFAX.—5½ h.p. Rex Triette, spring frame, free engine clutch, very reliable; £29 10s.—Below.

HALIFAX.—4 h.p. Rex Tricar, Phœnix two-speed gear, good running order; £21.

HALIFAX.—Twin-cylinder Minerva tricar, nearly new, and specially built, four-speed gear; £37 10s.—Halifax Motor Exchange, 16, Westgate, Halifax.

RILEY, 9 h.p., a grand machine, really like new, very fast, and open to strictest examination; £80 cash. — Bunting, Wealdstone.

TRICAR (Rover), 4½ h.p., splendid condition, bucket seat, car tyres.—Anderson, 16, Rosefield Avenue, Portobello, N.B.

TRICAR, 4½ h.p., water-cooled Coronet engine, chain-driven, Bozier two-speed gear, bucket seat, etc.; £25, or near offer.—Below.

TRICAR, 6½ h.p. Aster engine, Century tandem, two-speed, bucket seat, etc.; £40.—Hulbert-Bramley Motor Co., 96, Upper Richmond Road, Putney.

£20, or near.—3½ h.p., coach-built, two-speed hub, free engine, handle starting, chain drive, Chapman's double-blast fan, Palmer tyres, as new, not run 400 miles; photo.—W. C. Miles, Leominster.

6 h.p. Single Bucket-seated Runabout, two speeds, wheel steering, exceedingly low built, Dunlop tyres, unscratched, three accumulators, electric tail lamp, two gas lamps, do 40; seen by appointment; sacrifice £45; owner buying car.—8, Great Ancoats Street, Manchester.

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With (Roc Licensed) INTERNAL EXPANDING CLUTCH.

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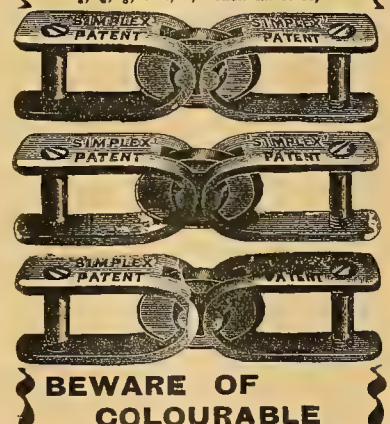

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TRICARS FOR SALE.

6 h.p. Singer Tricar, excellent condition; £60.—37, Newstead Road, Lee, Kent.

£45.—8 h.p. Tricar, Rexette, perfect condition, lamps; trial.—12, Cambridge Street, Sheffield.

QUADRANT Carette, 6 h.p., splendid order, lamps, tools; £45.—Spensley, Chertsey, Surrey.

1906 Tricar, very little used; £17 17s., or exchange.—Whitehall, Clothiers, Green Street, Upton Park.

BAT, 4 h.p., two speeds, £23, offers or exchange; Rover, 4 h.p., two speeds, as new, £28.—Brockley Cycle Works, S.E.

ANGLIAN Tricar, 3½ h.p., two speeds, water-cooled, car tyre on back, splendid order; £25.—Anglian Motor Co., Beccles.

4½ h.p. Riley, water-cooled, two speeds, coach-built, just overhauled; must sell; £29.—Brice, Brigstock Road, Thornton Heath.

RILEY Tricar, 4½ h.p., w.c., two speeds, excellent condition; trial; £38. — Write, Lloyd, Suburban House, Winchmore Hill, N.

4½ h.p. Tricar, White and Poppe, water-cooled, two speeds, Chater-Lea, spares; any trial; £27 10s.—123, Goldsmith Road, Leyton.

QUADRANT Tricar, 6 h.p., wheel steering, in first-class condition, spares, tools, accessories; £40.—Dr. McNeil, Garstang, Lancashire.

BRADBURY Tricar, 4½ h.p., water-cooled, two-speed, coach-built, all in good condition, new 1906; price £15. — J. G. West, Paulton, Bristol.

QUADRANT Carette, 6½ h.p., latest pattern, twin engines, two speeds, good condition; £45, or near offer.—"Regulbium," Sandwich, Kent

5 h.p. Riley Tricar, 1907, coach-built, wheel steering, two speeds, excellent condition; bought car; £50.—Grassland's, Balcombe, Sussex.

6 h.p. Twin Rex, with forecarriage, two speeds, rubber covered footboards, patent silencers; £22, or exchange.—Farrar, Square Road, Halifax.

SPECIAL Built Tricar, Garrard, three-speed, well sprung, 5 h.p., w.c., condition as new; cost £120, take £45.—Smith, plumber, Wivenhoe, Essex.

PHŒNIX, 4½ h.p., two-speed, chain, magneto, spring frame, footboards, tools, box, fan-cooled, excellent condition; £30.—24, Digby Road, Finsbury Park.

8-10 h.p. Rexette, new tyres, lamps, spares, etc., fast, good climber; trial; £50; would exchange for powerful motor cycle and cash.—290, Dalston Lane, Hackney.

8-10 h.p. Rexette, splendid condition, absolutely perfect, seats three, new tyres studded; any trial; £55, exchange motor cycle and cash.—6, Poulton Road, Southport.

SUNBEAM Mabley Runabout, 3½ h.p. De Dion, water-cooled, two speeds, good hill-climber; £30; will exchange for powerful motor cycle.—H., 112, New King's Road, Fulham.

4 h.p. Garrard Tricar, water-cooled, two speeds, Simms engine, magneto ignition, excellent condition; £25.—Bowden's, 29, Baldwin's Gardens, Gray's Inn Road, London, E.C.

3 h.p. Humber Tricar, free engine clutch, nearly new Dunlops, car tyre back wheel; £17 10s., or exchange two approved new cycles. — Toon, 4, Linden Grove, Nunhead.

LAGONDA, 10-12 h.p., 1907 machine, wheel steering, three speeds and reverse, Dunlop tyres, and non-skids, in perfect condition; £95. — C.H.C., Moor House, Staines.

6 h.p. Fafnir, twin, water-cooled, Chater-Lea frame, gear and bearings, three speeds and reverse, coach-built, wheel steering, Bowden control, Palmer cord tyres, Shaw studded band, good condition; £48, or near offer, cost £115; trial by appointment; owner bought car. Telephone, Barking, 534.—George Glenny, Brewery, Barking.

TRICARS FOR SALE.

3½ h.p. Sociable Tricar, gear drive, two speeds, climb anything, tyres, engine, and gears perfect. — Walker, 22, High Street, South Norwood, S.E.

£35.—6 h.p. Antoine twin-cylinder tricar, also 2¾ h.p. Kerry motor cycle, £17 10s.; both in first-class condition; money wanted. — 13, Little Ilford Lane, Manor Park, E.

LAGONDA Tricar, 10-12 h.p., water-cooled engine, three speeds, very fast on hills, excellent condition, all accessories; any trial; price £65.—The Western Motor Agency, Sidcup, S.E.

POWERFUL 4½ h.p. Tricar, air-cooled Stevens engine, Whittle belt, 2½in. tyres, long footboards, condition equal to new; write particulars; £30, or offer. —22, Carfax, Horsham.

REXETTE, 5-6 h.p., two speeds, wheel steering, open spring frame, double front seat, fine condition, perfect; £35 to clear; seen appointment.—R., 127, Bedford Hill, Balham, S.W.

6 h.p. Riley Tricar, very good condition, just overhauled, many refinements and spares, Bowden control; trial run; owner bought car; £60.—Seabrooke, The Elms, Grays, Essex.

6 h.p. Twin J.A.P. Tricar, Chater-Lea open frame, wheel steering, Renold's chains, J.A.P. clutch, 2½ Palmer cords; bargain. £38.—Seen, Wheeler, 27, Chatsworth Road, Clapton, N.E.

QUADRANT Carette, 6 h.p., latest model, very little wear, nearly new car tyres, non-skid rear, complete with lamps, spares, etc.; £45; owner bought car.—Parry, Powick, Worcester.

5 h.p. Tricar, Stevens w.c. engine, coach-built, wheel steering, friction drive, perfect condition; expert examination; £50 cash; no dealers; small car wanted. —Hayes, Chapel Place, Ramsgate.

HUMBER Tricar, 3½ h.p., chain driven, large clutch, absolutely new; cost £75, only run few miles, £30.—H.. 112, New King's Road, Fulham. Also De Dion car, 4½ h.p., new condition; £35.

RALEIGHETTE Tricar, 3½ h.p., water-cooled, two speeds, bucket seats, lamps, etc., extra strong back wheel, splendid order; £38, no offers.—Alcock, Lexden, Fassett Road, Kingston-on-Thames.

4½ h.p. Humber Tricar, water-cooled, two speeds and free engine, chain drive, coach-built, car tyre on back, lamps, etc., recently overhauled; £35, or nearest offer; must be sold. — 34, Price Street, Burslem.

PHŒNIX Trimo, coach-built, 5-6 h.p., twin Peugeot engine, two speeds, handle starting, free engine, in good condition, complete with lamps, tools, spares; £45, or near offer.—Box No. 9,423, *The Motor Cycle* Offices, Coventry.

4½ h.p. De Dion, water-cooled, open frame, Eagle, two speeds, wheel steering, luxuriously sprung, built on car lines, with car tyres, accessories, lamps, spares, Longuemare; £40.—Smith, Bronshill, Burnell Road, Sutton, Surrey.

5½ h.p. Rexette, coach-built, open frame, two speeds, water-cooled, carry two in front, just thoroughly overhauled and re-painted, equal new, car tyre on back, sprung all wheels, very fast, climb anything; sacrifice £33. — Geo. Deans, Baldock.

TRICAR, Century, 6½ h.p. Aster engine, water-cooled, two speeds, free engine, car tyres (700 by 85), Hans Renold chains, set of four lamps, apron, in splendid condition, and perfect running order; £31; room wanted.—25, Lower Richmond Road, Putney.

LAGONDA Tricar, 9 h.p., two speeds, good hill-climber, Grose band on driving wheel, complete with spares, new accumulator, in splendid condition; trial by appointment; good motor cycle in part exchange not objected to; price £42. —White, chemist, Beaconsfield.

4½ h.p. Twin G.B. Cycle, Simms-Bosch magneto, Nala two-speed gear and free engine, Whittle link belt, spares, etc., with coach-built forecar, upholstered leather, enamelled cream, beautifully sprung, 2½in. Peter-Unions, perfect; £42.—Turner, Ship Hill, Rotherham.

STANLEY DERMATINE MOTOR BELT

AND

The Burning Question: LEATHER v. CANVAS AND RUBBER.

On the 7th February, 1908, Mr. H. G. Cove read a paper before the members of the Auto Cycle Union on "Motor Cycles and Accessories." The following are extracts from "The Motor Cycle," Feb. 12th, pages 127 and 128. The burning question of "Leather v. Canvas and Rubber Belts" was fully dealt with in the paper:

The next interesting item was a very good hint with regard to the canvas and rubber belts, which had been sent to the lecturer by the maker of the Stanley Dermatine Belt. His advice is that when the belt is taken off it should be replaced to run in the same direction, as if the pull comes in the reverse direction, the strain is likely to draw back the canvas, and, as a result, the rubber on the top of the belt cracks. The advent of the adjustable pulley had created a demand for an adjustable belt fastener, and two fasteners were shown which have just been placed on the market, one the Stanley, in which the hook is detachable and can be used in conjunction with an adjustable pulley to alter the gear ratio from 4 to 4¼.

In the discussion which followed, Mr. W. H. Wells remarked: There was a time when he used leather belts; that was when there was nothing else. Now he used a rubber belt, and nothing now would induce him to use a leather one. He was able to keep his hands and gloves clean. The best leather belt he was never able to ride more than 100 miles without cleaning it.

Mr. A. C. Pemberton said: Rubber belts were as good as could be wished for. The great fault of leather belts was that they would not stand the weather; when soaked with rain they commenced to slip.

Mr. H. G. Bell said: Speaking of belts, he always used a rubber belt now, but if we could get a good preparation for leather belts it would be a satisfaction.

Mr. M. I. Tuchmann remarked: As to belts, he considered the rubber and canvas belt the only possible one. It had no serious disadvantages. The belt had a tendency to assume a certain shape. He considered one of the best things they had seen that evening was the Stanley Fastener for Belts; he thought it would be greatly used this year.

The only original Canvas and Rubber Belt is the

STANLEY DERMATINE.

Sole Manufacturers:

Messrs. the Stanley Dermatine Motor Belt Co.,

32, LONDON ROAD, BROMLEY, KENT.

STANLEY WEBB, Manager.

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PIGSKIN INFLATOR and RACQUET, etc., CLIP,

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Tyres puncture-proofed with Rubberised Pigskin.

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REG. SAMSON,

232, LADYWOOD ROAD, BIRMINGHAM.

TRICARS FOR SALE.

BAT Tricar Chassis, short, sprung back, front, open frame, irreversible wheel steering, hubs, ideal for tradesman's runabout, as new; sell cheap, or exchange for motor bike.—61, Grand Parade, Harringay, N.

10-12 h.p. Lagonda Tricar, latest model, won three medals, guaranteed perfect condition, two spare tyres, new spare chains; owner purchasing car of same make; £80.—Apply, H.B.H., 7, Northwick Terrace, N.W.

PHŒNIX Trimo, 1906, 5-6 h.p., twin, powerful fan, all in first-class condition, full spares and accessories; £37 10s. cash, or near offer, bargain.—Trimo, Acacia House, Seckford Street, Woodbridge, Suffolk.

8-10 h.p. Rexette, water-cooled, wheel steering, two speeds, all tyres new, non-skid on back, one spare, four lamps, all accessories, good condition; any trial; £40. — Wilson, 33, Pantiles, Tunbridge Wells, Kent.

TRICAR, 6-8 h.p. Stevens, double-cylinder, water-cooled, open frame, coach-built body by Rothschilds, two speeds and reverse, in excellent condition throughout; accept £35, lowest.—15, Hamlet Mansions, Hammersmith, W.

REXETTE, 5 h.p., two speeds, wheel steering, just been thoroughly overhauled and renewed, tyres perfect, new Brooks band and Riche tube on back, new accumulator, lamps, and horn; £35. —Patterson, 13, George Street, Edinburgh.

10-12 h.p. Lagonda Tricar, three speeds, non-skids on all three wheels, twin-cylinder water-cooled engine, coach-built, two ignitions; very lowest price, £65; motor cycle taken in part payment.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. Twin Kerry 1907 Forecar, Chater-Lea throughout, 2½in. Palmer cords, two accumulators, horn, and foot pump, synchronised ignition, two-speed and reverse, handle starting, spring frame; 42 guineas.—Ayden, 17, Blackstock Road, Finsbury Park.

4½ h.p. Twin Precep Tricar for sale, Mills-Fulford coach-built body, in good order, thoroughly overhauled last summer, numerous spares, new Duco-Flex belt; £25 cash, or nearest offer; seen by appointment.—Rose Villa, Court Road, Sutton, Surrey.

LEEDS.—5 h.p. water-cooled Humber tricar, open frame, coach-built seats, wheel steering, two speeds, Palmer tyres front, studded car tyre back, condition throughout as new; £42 10s., or part exchange.—The Leeds Motor Exchange, 28, Dock Street, Leeds.

9 h.p. Darracq, three-seater, now being painted and upholstered, Humber green, £45 just spent on overhauling, guaranteed perfect; price £75; take Orient Buckboard, or similar runabout, in part exchange.—Apply, Robbins, 320, Clapham Road, London, S.W.

£25.—3½ h.p. Beeston Humber tricar, free engine clutch, chain driven, wicker, upholstered dark red leather, large brass tank, two spare chains, two inner tubes, two accumulators, spring seat-pillar, Brooks B100 saddle, footboards, no pedals, in good going order.—J.O., 261, Rotherhithe New Road, Rotherhithe.

QUADRANT Carette, 6½ h.p., latest pattern, perfect condition, fast, excellent hill-climber, run at very small cost, open frame, wheel steering, coach-built, new synchronised ignition fitted, non-skid on back, lamps, large quantity spares, chain, valves, inlet bodies, tyres; any trial; £55.—Ball, Corre Street, Ludlow.

REX Tricar, 6 h.p., with Kent three-speed gear and clutch, art cane forecarriage, upholstered in green, toolbox and spares, non-skid to back wheel, all in splendid condition; will sell cheap, or exchange with cash for one of higher power.—C. Duce, 17, Glendale Road, Erith, Kent.

TRICAR, 4½ h.p. Humber water-cooled engine, coach-built, bucket driving seat, wheel steering, free engine, two speeds, foot clutch, starts like a car, fitted with electric light, in splendid condition; £44 cash, cost over £100; buying car.—W. Ainsworth, 5 and 7, Hyde Road, Gorton, Manchester.

EXCHANGE.

CTRIC Lighting Plant, 40 lights, qual new, for powerful twin, or 0.—Pickering, Ampleforth.

L Exchange new cycle and cash or motor cycle. — Cross, 7, Salis- renue, Barking.

Antoine and Jap-Ariel, both rly new, exchange modern sin- cash.—Barrett, Barrow.

'D, Offers, exchange, or cash, 1½ motor cycle, nearly complete. mpsbourne, Hornsey.

Excelsior, M.M.C. tricar, for our-cylinder or twin bike, or sell. -elton, 39, Birchfield Road, Birming- am.

2¼ h.p. Werner, good condition, new 2 Dermatine, for push bike and £5, r sell £9 10s.—Whitlark, Manor House, lifton, Bristol.

HALIFAX. — What do you want? We exchange motor cycles, tricars, ars, or 1908 Rex and N.S.U. models; list n application.

EX Twins, 6 h.p., very powerful, spring forks, £22; £16 allowed for 1906 Rex 13 1905, £11 10s. 1904, or £10 10s. for 1903 ex in part payment. Hurry up and get he pick. — Halifax Motor Exchange, 16, Westgate, Halifax.

EXCHANGE 2¾ h.p. w.c. De Dion two- speed tricycle for low lightweight, r sell £8; two tyres good.—No. 9,381, *The Motor Cycle* Offices, Coventry.

EXCHANGE, 3½ h.p. Excelsior, low built, long bars, splendid condition, for ss power and little cash, or sell £11. — pivey, c/o Falling Lock, Wakefield.

ALFORD.—Phœnix tricar, 3½-4 h.p. Min- erva, Anglian two-speed and clutch, 22; wanted, 1907 3½ h.p. cycle, cash ad- stment.—Tobacconist, 110, Cross Lane.

1¼ h.p. Fafnir, low built, vertical 4 engine, in good running order and ndition; bargain, £8, or push bike and sh.—250, Glyn Road, Lower Clapton.

CAR Parts, new, four wire wheels, back and front axle, steering mechanism, fferential, chain drive; £8 10s., ex- ange motor cycle.—Partington, Slough.

SPLENDID Toned American Organ, also National Encyclopædia, offered for agneto ignition car or tricar, good res.—9,422, *The Motor Cycle* Offices, Cov- ntry.

1¼ h.p. Alldays Motor Cycle and cash 2 for well-made tricar, about 5 p., one requiring overhauling might uit.—Shaw, Morton Street, Royston, erts.

EXCHANGE motor tricycle, De Dion engine, splendid condition, power- ul, also trailer, for good motor cycle or sh offer. — Rutherford, High Street, odalming.

EXCHANGE, Detachable Forecar frame for motor cycle accessories; best nuine offer to value of £3 10s. has it.— otor, 18, Ashbourne Road, Claremont, endleton, Lancashire.

WAUCHOPE'S arrange exchanges of all descriptions; liberal allowance r second-hand machines in part pay- ent for new models. — Wauchope's, 9, hoe Lane, London.

ADVERTISER is willing to make, in ex- change for good motor cycle, a full r partial set of artificial teeth in gold r vulcanite.—Address, X., 96a, Mitcham ane, Streatham, S.W.

HIGH-CLASS Zonphonian, with plates, almost new, play any tune; cost 15 last year, exchange for lightweight otor cycle, or £10 cash.—30, Calthorpe reet, Gray's Inn Road, London.

EXCHANGE, for good motor cycle or tricar, furniture, any description, rect from the works; valued wholesale. Furniture Manufacturer, 3-5, New Nor- lk Street, Shoreditch, London.

EXCHANGE, 6 h.p. De Dion-Regal Car, three speeds and reverse, foot and de brakes, Cape cart hood, two or four- ated, artillery wheels, detachable ton- eau, complete set of lamps, horn, three ccumulators, everything in splendid ndition; photo; £30, and good tricar.— ord, 19, Gordon Street, Coventry.

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PERCY MAGNETO COVERS

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Two 3 h.p. N.S.U.'s, Magneto	**24**	**0**
1907 5½ Twin N.S.U., with Two-speed Gear	**40**	**0**
1907 3½ Triumph, as new ..	**35**	**0**
3½ Twin Werner, plating and enamel new	**18**	**10**

We can give liberal exchanges for N.S.U. LIGHTWEIGHTS, which we can deliver from stock.

THE MOTOR MART,
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A PAIR OF THE FAMOUS

Rogers Detachable Tubes

fitted to the L.M.C. Motor Cycle in the Quarterly Trials, January 25th gave complete satisfaction. *Agents wanted.*

Apply REG. SAMSON,
Ladywood Road, Birmingham.

EXCHANGE.

CHATER-LEA Frame, unfinished, and accessories, new; £4, or exchange for sidecar.—28, Gladstone Road, West Ham.

EXCHANGE, 5-6 h.p. Quadrant Tricar, good condition, for up-to-date pow- erful bike, also a 1½ h.p. motor bike for powerful engine, or sell cheap.—James, Wotton-under-Edge, Gloucestershire.

CYCLE, etc., advertised in *The Motor Cycle*, March 4th, page 29, right-hand bottom corner, exchange the lot for tri- car, or sell or exchange separately; offers.—Job, 9, Warwick Road, Ealing, W.

EXCHANGE, 2¾ h.p. Clyde, magneto, Watawata, Clinchers A Won, splen- did condition; seen any time; for a Sun- beam cycle with oil bath, in good condi- tion, together with £5.—R. Wheeler, Stretham, Ely.

WILL Give £5 and my 3 h.p. Werner, with spring forks, Longuemare, etc., in exchange for 3½ h.p. of good make, Minerva or Kerry for preference, or sell for £15; no rubbish wanted or offered.— 12, Minerva Avenue, Dover.

EXCHANGE Cinematograph Outfit, com- plete 1,800 feet films, lady's 1907 Rudge-Whitworth, also finest Edison Home phonograph, 80 records, 30in. trum- pet and stand, for two-speed tricar.—F., Charlton Studio, 10, Johnson's Court, E.C.

WANTED.

TRICAR, or 5-6 h.p. cycle and sidecar- riage.—39, Warwick Road, Batley.

TRICAR, two-speed, for hilly district; trial; cheap.—W., 94, Norwood Road, S.E.

WANTED, magneto engines (motor cycle), 3 to 9 h.p.—128, High Road, Tottenham.

WANTED, Voltoo two-cell trembler coil, perfect, and cheap.—Mather, Town Hall, Nuneaton.

WASTE Indiarubber, every descrip- tion; highest prices paid.—Union Rubber Co., Calls, Leeds.

WANTED, Motor Cycle; must be cheap; cash waiting.—Rey, 5, Heath Street, Hampstead.

HALIFAX. — Rex singles in part pay- ments for Rex twins; splendid al- lowances. See Exchange columns.

HIGH-CLASS Machines purchased for prompt cash.—Halifax Motor Ex- change, Westgate, Halifax.

MOTOR Cycle Wanted in exchange dia- mond earrings, value £20.—35, Greenleaf Road, Walthamstow.

WANTED, low-powered motor cycle, exchange gent's gold watch and double albert.—George, Princess Street, Goole.

WANTED, 26 by 2½in. tyre, good make, perfect condition; also good volt- meter. — C. Warr, Marathon, Grayshott, Surrey.

WANTED, 100 Motor Cycles, any condi- tion, for shipment; must be cheap.—Box 9,430, *The Motor Cycle* Offices, Coventry.

WANTED, motor cycle, exchange Rose- wood overstrung piano and cabinet player.—Longhurst Lodge, Ash- tead, Surrey.

TRICARS and Motor Cycles, any make, in part payment for 6 h.p. Rover cars at £130.—Davis and Son, Moseley, Birmingham.

WANTED, 3 h.p. Lincoln Elk (light- weight); send full particulars. — W. Pearce, Coffee Bar, Tournay Bar- racks, Aldershot.

WANTED, sidecars, any quantity; will give in exchange new £10 10s. gents' pedal cycles, guaranteed twelve months.—Below.

WANTED, good modern motor cycles; cash waiting if quality and prices are right.—Farrar, Square Road, Halifax.

LADY-BACK or two gents' Chater tan- dem, low frame, and cash, for 3½ h.p. motor bike, low saddle, long bars, or sell £14; any evening 5.30 to 7.30, or stamp for reply.—11, Croydon Grove, Croydon.

WANTED.

WANTED, 2¾ h.p. Clyde, magneto.—Foy, jun., Wokingham.

WANTED, pair of Palmer covers, 26 by 2.—78, Middleton Road, Dalston.

3 or 3½ h.p. Vertical Engine wanted, for £8 8s, lady's bike.—5, Kingcroft Road, Harpenden.

MOTOR Cycles bought for spot cash, any condition.—Spencer, 78, Styne Road, Acton.

WANTED, pair Xl'all forks, or other, perfect; cheap.—56, King's Bench Street, Hull.

WANTED, Clincher cover, 26 by 2½, also 1in. belt; cash.—Browner, Lodge Lane, Liverpool.

WANTED, four-cylinder F.N., any condition.—Smith, Ford Street, St. Mary, Nottingham.

GOOD Low Frame 3½ h.p. cycle; see offer in Exchange column.—12, Minerva Avenue, Dover.

CYLINDER Wanted, for 3½ h.p. Minerva; lowest price.—39, Montgomery Road, Longsight, Manchester.

WANTED, light low 2 to 2¾ h.p. motor cycle, vertical; must be good.—18, Gorton Street, Blackpool.

WANTED, inclined engine, Minerva preferred; trial.—Shade, 83, Brandon Street, Walworth, S.E.

WANTED, pair 26 by 2½ covers, heavy, good condition, beaded.—9,424, *The Motor Cycle* Offices, Coventry.

WANTED, good motor frame, to suit inclined engine.—2, Bryn Street, Ashton-in-Makerfield, Lancashire.

MOTOR Bicycle, good condition, low; cheap; send full particulars.—55, Nightingale Road, Clapton, N.E.

WANTED, second-hand bucket seat, any condition.—Address, Johnson, Court House, Rottingdean, Sussex.

WANTED, Triumph, 3½ h.p., magneto; £25 cash offered. — Full particulars, Deane, 51, Statham Street, Derby.

MOTOR Saddle, ⅞in. belt, spares for 2½ h.p. Jap; approval.—Lamb, 9, Connaught Mews, Edgware Road, London.

WANTED, gear box, chain drive, for tricar, also clutch, and any other parts.—4, Frances Street, Woolwich.

WANTED, 3½ h.p. motor cycle, Bat or Quadrant preferred, must be cheap.—Fox, 6, Hertford Road, Worthing.

WANTED, twin motor cycle; exchange 3½ h.p. Linon and cash, or sell £18. —Seen at 152, Crossbrook Street, Cheshunt, Herts.

WANTED, 3½ h.p. water-cooled De Dion engine, or similar; will pay £1, balance instalments.—Westfield, Pitsea, Essex.

WANTED, motor cycle, 3 h.p., or higher, perfect condition; approval, deposit.—Wood, Haile, Cumberland.

WANTED, twin engine, good make; also bucket seat; state lowest price for cash.—4, Frances Street, Woolwich.

1907 Motor Cycle wanted, not under 3½ h.p., magneto; cheap for cash. —Motorist, 6, St. Agnes Place, Kennington, S.E.

WANTED, twin Vindec, two-speed, late 1907 or 1908, with accessories; cheap for cash.—Smith, 66, Durban Road, Beckenham.

WANTED, spare valves, springs, trembler, voltmeter, accumulator, etc., for 2¾ h.p. Minerva.—George, 11, Liverpool Road, Islington, N.

M.M.C. Cylinder Head wanted (2¾ h.p., 79 by 80), genuine or pattern, but first-class condition.—Broad, Cheltenham House, Hotwells, Bristol.

WANTED, tricar change speed lever and brake lever combined, or separate, also acetylene head lamp, also irreversible steering column (without wheel), for tricar.—Full particulars and drawings to Copper, 21, Fitzwarren Street, Salford, Manchester.

G. T. RICHES & CO.,
19, STORE STREET, LONDON.
RICH DETACHABLE AIR TUBE,
Fitted with the new Protective Sleeve

26in. x 2¼in., 14/6; 26in. x 2¼in., 15/6.
Your own tube converted. Please write for special list, with all prices for new tubes and prices for conversion, with instructions and hints. Our general accessory catalogue M free on application.

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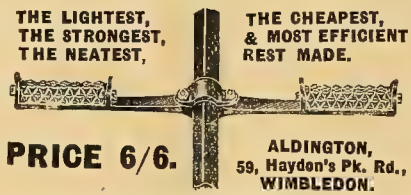

PRICE 6/6.
ALDINGTON, 59, Haydon's Pk. Rd., WIMBLEDON.

WANTED.

WANTED, Orient Buckboard, Eagle Trimo, or runabout; exchange 3 h.p. Fafnir bike, cash adjustment.—Reed, 7, Argyle Street, Gateshead.

2½-3 h.p. Inclined Engine, new condition, cheap cash; or 2 h.p. Minerva, carburetter, silencer, part exchange.—Hunt, Llanbradach.

WANTED, 3½ h.p. Quadrant, magneto preferred; must be in good condition, and cheap; London.—Box No. 9,428, *The Motor Cycle* Offices, Coventry.

WANTED, 1908 or 1907 motor cycle, perfect, magneto, spring forks; full particulars, lowest spot cash price. — Jeweller, 19, Upperhead Row, Leeds.

WANTED, F.N. lightweight, Motosacoche, Moto-Reve, or good lightweight; also 5 h.p. good twin; cash waiting.—5, Lorrimore Buildings, Walworth, S.E.

SIDECAR, Montgomery or Millford, castor, to fit Minerva, 26in. wheel, for right side; must stand expert test; cheap.—Thompson, 22, Chancery Lane, London.

WANTED, push cycle and cash, for 2¾ h.p. Minerva, perfect, like new; sell £14, lowest; will bring it 30 miles.—84, Loughrigg Street, Bradford.

WANTED, Open Frame Tricar, Riley or Singer preferred, exchange two-seater, 6 h.p. De Dion, cash adjustment, or sell £58.—Williams, 8, Lansdowne Terrace, Hampton Wick.

WANTED, 5½ h.p. Rex de Luxe, latest pattern, twin tyres, magneto, or 1907 Triumph, 3½ h.p., magneto, in exchange for 50 guinea Rex (very little wear) and cash.—J. Simmonds, Twyford, Berks.

LINCOLN-ELK, or other well-known make, lightweight bicycle, 2-3 h.p., free engine preferred, must be in excellent condition and cheap; push cycle adjustment, — J. Hargreaves, Bolton-le-Sands, Carnforth.

WANTED, Motosacoche, or lightweight low-geared motor cycle; will exchange piano player and music rolls; would give cash in addition for really good machine. — W. S. France, Broad Quay, Bideford.

WANTED.

WANTED, for cash, 6 or 8 h.p. genuine De Dion motor car, must be in first-class condition.—W. Ainsworth and 7, Hyde Road, Gorton, Manchester.

CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card. — Address, "The Cycle and Motor Trades' Review" Offices, Coventry.

MISCELLANEOUS.

5 h.p. Water-cooled Hobart Tricar, seats three, new last year; £20.

DOUBLE Coach-built Forecarriage Attachment, large rubber footboards, seats two adults; £5 10s.

4½ h.p. Water-cooled Stevens Engine with tank, radiators, Longuemare carburetter, and silencers, nearly new £7 10s.

5Ft. Back-geared Lathe, treadle or power, very good condition; £4 10

PARAFFIN Brazing Lamp, largest size nearly new; £2.

6IN. Self-centring Cushman Three-jawed Chuck, new; £2.

TWO-SPEED Gear Box, all enclosed, chain drive; £3 10s.—Richmond, 2 Neachell's Lane, Wednesfield.

FULLER Four-cell Charging Battery, cost £2 2s., sell 15s.—Harry Eaton Witney, Oxon.

WHIPCORD Breeches, latest cut; 10 6d. — J. C. Savage, 119, Donegal Street, Belfast.

FOR Sale, Triumph 1907, 1908, magneto covers, registered; 6s.—John Guest and Sons, Walsall.

1¼ h.p. Light Motor Attachment, complete, good condition; 40s.—Motor 1, Rose Place, Oxford.

CHAIN-DRIVEN Motor Cycles, design for relieving shocks for sale. Museum, Warrington.

SHEDS for Motor Cycles, 45s.; portable.—Stevens, 82a, Leighton Road, Kentish Town, London.

COIL, double-cylinder, trembler, good condition; bargain, 15s. — 92, Melbourne Road, Eastbourne.

BUCHET Engine, 6 h.p., two cylinder, side by side, suit tricar; £5 10s. Genn, Gap Road, Wimbledon.

FOR Sale, Eldorado V Belts, price, ⅞in. 9d.; ¾in., 10½d.; ⅞in., 1s.; 1in., 1s. 2d. Pollin, belt maker, Spalding.

WHIPCORD Cycling Breeches, latest cut; 10s. 6d.; write for patterns. Booth, tailor, Longton, Staffs.

ENGINES, air or water-cooled, 3, 6, 9 h.p.; write for particulars.—Advance Motors, Ltd., Northampton.

FRANKS'S Lamp, and large separate generator, little used; 12s. 6d. Whittle, Blackdown, Farnborough.

NEARLY 9ft. new Stanley-Dermatine belt, 1in., not used five miles; 9s. 6 —Jones, Hendre, Penprys, Pwllheli.

BOWDEN Back Wheel Motor Cycle Brake, complete, new, never used 13s.—Parry, 60, East Hill, Colchester.

WHIPCORD Cycling Breeches, latest cut; 10s. 6d.; write for pattern —Booth, tailor, Longton, Staffs.

CHEAP Motor Cycle Houses; catalogue sent free.—Portable Building Company, Felsham Road, Putney, London.

PAIR 28 by 2½ Beaded Palmer Cord Tyres, new, £1 each; also free engine clutch, £1.—33, Killyon Road, Clapham.

OSBORNE Four-speed and free engine pulley, fit Rex; £2.—Winstanley, 2 Gloucester Mews West, Montague Square London.

YOUR New Mount is incomplete without the Advance adjustable pulley, £1.—Advance Motor Mfg. Co., Ltd., Northampton.

MAYFAIR Accumulators, guaranteed 15 a.h., 10s. 6d.; 20 a.h., 17s. 6d 40 a.h., 30s. — Fellows, Hertford Street Mayfair.

THE MOTOR CYCLE

Vol. 6. No. 261. CONTENTS. March 25, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

Exclusion of Dust.

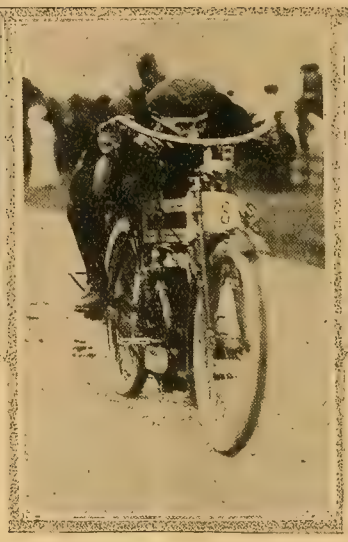
WE have consulted an engineer who thoroughly understands the sieving of very fine cement, flour, and other powder substances with a view to discovering if it is really possible to prevent the ingress of dust to the engine *viâ* the carburetter. From the enquiries made, we have come to the conclusion that any material employed for the exclusion of dust would have to be so fine in mesh that a very large area would be required to pass the requisite amount of air. Our engineer friend recommends a cloth material soaked in ether as the very best means of excluding dust, but as dust is so fine and the induction is so rapid in the case of a motor cycle engine, it would cause the ether to rapidly evaporate, and the cloth would require perpetually saturating with the ether to keep it moist. Under the circumstances, it would appear that it is almost impossible to prevent fine dust entering the engine, without going to extremes in the way of dust excluders which would be practically prohibitive on a car, let alone on a motor cycle. The particles of dust raised by motor and other traffic are so fine that ordinary wire gauze, or even muslin of a reasonable mesh, would not entirely prevent the ingress of particles, although it might do so partly. Readers will remember that an article appeared in these columns advocating that all the passages for air should be carefully guarded with gauze, but from closer investigation we have come to the conclusion that at present any gauze fitted to a carburetter would be practically useless in keeping out dust particles which are found in the analysis of deposit on the piston head and cylinder. These particles are so extremely fine that they could not be excluded from the engine without special appliances, such as are used in factories where work has to be carried on free from dust. There is also another thing in connection with this matter which renders gauzes practically inoperative, and that is the very finest gauze defeats its object by becoming in a few hours absolutely clogged up, one or two very fine particles of dust being sufficient to stop each hole in the gauze when it is a matter of several thousand meshes to the inch. We had the idea at first of entirely enclosing the carburetter in a metal box, fitted with gauze sides and ends, but when it came to working it out, we found that the size of the box would be prohibitive on a motor bicycle, and, even if constructed, the intakes would probably become too clogged to pass the requisite amount of air after a few hours riding.

The New Patents Act.

THE Act which was passed in August regarding the manufacture of foreign articles patented in England will have a considerable effect upon the Continental trade in motor cycles and accessories. An article on the subject is published elsewhere from the pen of Mr. Douglas Leechman, barrister-at-law—a writer thoroughly acquainted with motor cycle manufacture.

A person or firm manufacturing motor cycles or accessories on the Continent which are patented in England, will, when the Act comes into force, be compelled under certain conditions which are set forth in the article to make arrangements for their manufacture in England. According to the daily press, a large German firm has already made arrangements for a plot of land in Lancashire or Cheshire upon which to erect a factory for the manufacture of a patented article, we believe, of general use in the textile and dyeing trades.

HOW TO WIN HILL-CLIMBS.



THE FOLLOWING ARTICLE HAS BEEN PREPARED FOR US BY AN UNMECHANICAL AMATEUR, WHO SECURED FIRST AWARD IN EVERY HILL-CLIMBING TRIAL HE COMPETED IN LAST YEAR.

THERE are two points connected with the winning of a hill-climb outright, one or other of which nearly every amateur one sees competing fails to take into proper consideration. One relates to the preparation of the machine, and the other to the riding of it.

As regards the machine, it is commonly thought some secret "dope" is requisite for success, the fact being that mere *thoroughness* of preparation is what the trade riders attain, and the amateur usually overlooks. Careful, ordinary attention to every detail at the last minute is the clue rather than the furtive and frantic employment of some specially skilled knowledge.

Then having got his machine into perfect tune, the amateur is apt to forget that when fifths of a second decide the awards, the actual *riding* of his steed is at least as important as the bringing of it to the post in tiptop order. I propose to devote a little space to both these points.

And first as regards the riding of it. I may divide this under three heads—starting, windage, and levers.

Standing and Flying Starts.

1. STARTING.—Some hill-climbs commence with a flying start, which means that a hundred yards or so are allowed to get up speed before the bottom watch-holder is reached, and in others the time occupied in getting under way is included in the handicap. In both alike every fifth of a second is of equal importance, for I never rode yet in a flying start event where I had time to get going at my best before I struck the starting tape. For a winning start, three things are necessary:

The machine must start in a yard or so.

It must leap off the mark at high speed, *i.e.*, with spark as near as possible fully advanced, and the throttle wide open, not commencing at the ten or fifteen miles an hour which serve for a starting pace in ordinary riding.

From this second point it follows that the rider must waste no time in feeling for a pedal or footrest; if he did, the machine would leave him behind. He must go straight from the ground into the saddle as soon as the valve is dropped, and as clean as a whistle, so that he may get his hands on the levers and his body down along the top tube at the earliest possible moment. (This mount is very easily acquired by practice at lower speeds; if you have not enough nerve to learn it, you will not win a climb held by a "warm" club.)

2. WINDAGE.—The power absorbed by wind resistance increases inversely as the speed. Therefore the nose must be tucked down behind the steering column or close down on the lamp bracket, the back almost flat along the tube, and the knees kept well in to the tank. An uncomfortable pose truly, but the dash up the hill only lasts half a minute or so. This is why the reversed head-gearing is necessary, and not pure swagger as it is often supposed to be. With a big cap turned peak forward, it is impossible to see in a crouched riding position. No cap at all is preferable. The handle-bars must be of a design that leaves real control in this position. If the control be poor—and this position is not ideal for wrist work—to strike a stone at high speeds leads to a wobbling that means either a loss of several seconds or a smash.

Preliminary Trials.

3. LEVERS.—Every tiny mistake in handling the spark, throttle, or air lever means a second or two gone beyond recall. The lever control cannot be learnt on other hills than the actual venue of the trial. The probability is that, if you are good enough to win at all, your engine will never audibly slow from bottom to top; therefore you cannot learn lever settings by ear. Consequently, the only safe plan is to reach the hill in time to have a few preliminary bursts; it will still remain somewhat of a fluke whether you actually get the last two or three-fifths of a second out of your machine in the all-important timed spin, and you can not satisfactorily time yourself in practice. But you probably learn that an extra notch of gas or air at one or two points increases the speed, and save yourself the mortification of learning *en route* to the top that you have dropped a second or so that were really within your reach.

As regards preparation, every single item should be gone over, not at home the night before, but after ar

low to Win Hill Climbs.—

arly arrival at the hill an hour or two before the start. do not propose to go into all the preliminary work, vhich would mean a treatise in itself, but into one or wo points relating to preliminaries, and into one or wo more relating to the finishing touches just before unch.

1. The compression must be dead perfect before ou leave home. It will almost certainly have lost its nal veneer of polish *en route* to the hill, and this

Crossing the starting line at full speed.

ust be restored at any price. Test it while the engine warm, and test it by actual proof, not by feel. If e valves were a sound fit the night before, they will a sound fit still, unless you have recklessly scorched the morning. But take an oilcan of thick oil, and iear oil on all the compression joints externally, viz., .lve cap washers, compression taps, inlet valve domes automatically operated), and sparking plug. You ill almost certainly detect bubbles when the engine is rced over compression. First use a spanner to tighten ıy leaky parts, and then try again; if the leakage is ill evident, you must renew the copper and asbestos ashers, and tighten them well home, giving them a final ghtening after warming the engine just previous to the art. In 1906 I lost two climbs I ought to have won, ause the warming up of my engine in a long delay fore the start, had developed leaks through the spark-g plug washer.

Cleanliness Essential.

2. IGNITION.—Go over the whole of this system r cleanliness and tightness of connections. If the djustment was right on leaving home, it will still be ght in all probability, but there may be a little dust a slight greasiness which just detracts from perfec-on and robs you of two or three seconds. The con-cts at all events will be the better for flushing with trol and mopping with a bit of rag. The magneto ntact-breaker should be clear of oil. The sparking lug setting should be confirmed, and the lock-nut hich holds the porcelain in place lightly tested with a anner.

3. LUBRICATION.—Run all waste oil out of the crank chamber, and refill it with at least four pump-fuls of fresh. Start up the hill with your pump filled, and in the preliminary bursts see if a pumpful halfway up gives the engine fresh heart. After draining and again lubricating with four charges, pedal it round a few times to distribute the fresh oil.

4. CARBURETTER.—Many amateurs imagine the secret of their defeats lies in the carburetter. I doubt if it ever does in singles, but I know it often does in twins. A larger jet will pay in short bursts than is advisable in touring practice, say a 10-slot jet on a 5 h.p. twin, for instance, whereas in touring a 10-slot jet serves an engine of double the power. Having decided on the jet, the next thing is to make sure that the engine is receiving as much extra air as it will take at full speed. I do not know a single twin-cylinder carburetter which supplies enough air for a 5 h.p. twin at fifty miles an hour. The engine will almost drink neat air; and I find a huge tertiary inlet in the intake pipe the secret of winning on twin-cylinder machines. As such an improvised intake is difficult to work from the saddle when racing, I open it at the start, and commence with the lever operated air intake closed, and as the speed rises supply the needed extra air by the lever provided. With a single-cylinder engine, the normal air supply can usually be induced to provide all the air that is needed, but these machines are far more delicate to drive in hill-climbs. An hour before the start the jet should be dismounted, and its absolute cleanliness verified. Two minutes before the start the engine should be warmed up. A cold engine is almost as bad as an overheated one. If the carburetter is accurately adjusted, its lever need not be touched in a half-mile incline from bottom to top. On a mile climb, the engine should be started on full throttle, and the throttle closed down a little at different parts of the run as the gradient eases a trifle. On a half-mile incline, probably the throttle may be left full open all the way up, and the air lever just closed down a shade near the top, or where the grade is stiffest. In both cases the

Soaring over the brow of a steep hill.

How to Win Hill Climbs.—

ignition should stand full advance the whole way up with a twin, and with a single should need retarding only on the very steepest part of an extremely steep hill.

The Wheel Bearings Require Attention.

5. DETAILS.—There must obviously be as little belt slip and bearing friction as possible. How many amateurs remember to test, oil, and adjust their wheel bearings and free-wheel clutch, for instance, before competing in a timed climb?

6. LIGHTENING THE MACHINE.—If you are to score fastest time, everything of which the machine can be stripped under the entering agreement should undoubtedly be taken off. If, however, you are going for first award on formula, it is well to work out the formula as a test on the following lines: Take two identical machines, say two 5 h.p. Blizzards. Credit each with different times and different weights, *e.g.*, fifty and fifty-three seconds and weights of 150 lbs. and 160 lbs. If the extra weight of the second machine scores better than the faster time of the first machine, and would be placed first in the handicap, take down some unneeded weight to the venue in the form of tools, clothes, etc. Then make your trial spins under different weights till you have arrived at that weight which allows your machine to go full buzz from the bottom to the top as near as you can say. Ride that weight in the trial, neither more nor less. A few pounds of extra weight do not appreciably slow your machine, and yet score as much or more on the formula as those extra seconds you cannot secure. I have never ridden in a climb as light as I could have done under the rules. I first coax the machine to go up as fast as I can, and I then add as much weight as I can without appreciably slowing the machine.

7. GEAR.—The gear ratio is a most important point. Do not adopt a gear which takes the foot-hill at a furious pace and causes you to retard the spark on the stiff knuckle higher up. Select a gear—an adjustable pulley makes this simple—which will allow the engine to be doing full buzz on the crux of the hill. If limited to one gear through not having an adjustable pulley or through using a chain drive, you are more likely to show up well with too low gear than with too high a gear.

On the Course.

8. COURSE.—Study the course beforehand. Mark out mentally a line on the road which you intend to follow in the timed trial, cutting across the bends as straight as ever you can. If you neglect this you may have to use the brakes to round a corner, or may find yourself on the rough edges of the road, and lose time through jolting or wobbling.

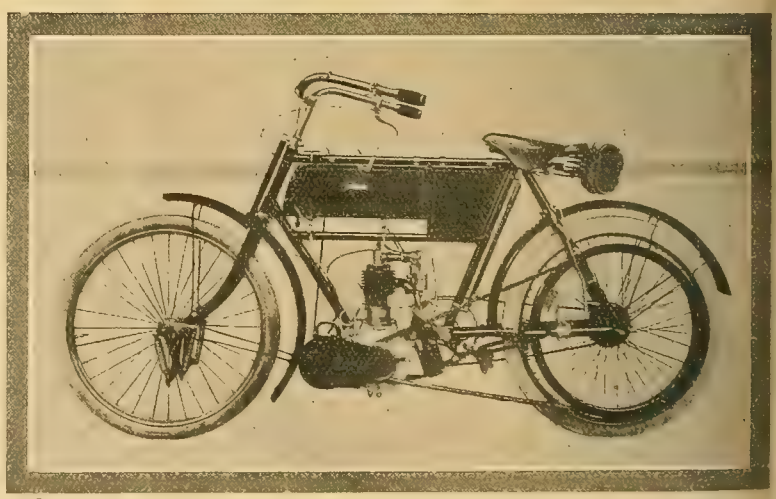
9. Before starting do not forget to see that all the holes of the silencer are clear of mud and burnt oil.

10. Screw the petrol tap tight in the wide open position before starting, lest it should shake into a partially closed angle. Have the tank fairly full; a good head of spirit in the tank ensures a good feed to the carburetter. It is well to see in preliminary practice if pressing down the float tickler increases speed up the hill. If it does, the petrol should be set at a higher level in the jet. Moreover, if the carburetter gets externally wet in trial practice, the vibration is causing it to flood, and some form of damping cap should be used on the top of the needle.

11 (and last). Don't let the officials bustle you at the start. Some men when clad in a little brief authority become amazingly fussy, and want you to start before you are ready or while the road is not clear. On the other hand, don't keep them waiting.

THE 1908 ARIEL LIGHTWEIGHT.

THE illustration herewith is from a photograph of the latest 2½ h.p. Ariel lightweight motor bicycle, manufactured by the Components, Ltd. (Ariel Department), Bournbrook, Birmingham. A number of improvements have been made in this model, including spring forks, longer handle-bars, backward seat-pillar, extra wide mudguards (the rear one made in two halves, so that it is easily removable for tyre repairs), and separate exhaust valve lifter. Magneto ignition can now be fitted if desired, the magneto being driven by a chain from the engine-shaft. The chain is enclosed in a case, which will readily be seen in the photograph. The Ariel 2½ h.p. lightweight brought up to date should find a ready sale among those riders who desire a moderately powerful machine, yet a motor cycle throughout; that is to say, specially built with motor cycle tyres, mudguards, frame, and fittings. We have been offered one of the new lightweight models fitted with magneto ignition for trial very shortly, and shall then have something to say regarding the machine's performances.



Some new improvements will be noticed in the 2½ h.p. magneto lightweight Ariel depicted above.

Ferrofix brazing is a new process for brazing cast-iron which it is claimed renders a cracked water jacket as new without injury to the cylinder. Borfix is a new flux introduced by the same firm, the Ferrofix Brazing Company, Dock House, Billiter Street, from whom all particulars can be obtained.

The Selection of Gear Ratio.

By A. G. LEE, B.Sc.

THE last few years have seen the introduction of variable gears, capable of more or less rapid adjustment, either from the saddle or by dismounting. The problem of the best gear ratio to be used for a particular purpose therefore presents itself, and the object of the present article is to offer an indication of the method of solving it.

It may, I think, be taken as an axiom that the best gear ratio is the one that allows the engine to give its maximum power at the maximum speed which it is capable of propelling the machine against the given adverse conditions, *e.g.*, head winds or hills. This statement does not take overheating into account, but, if the hill is not too long, this may be neglected.

Horse-power Required on the Level.

The question of a machine on level ground will first be considered.

The resistances which have to be overcome in riding on the level are:

(1.) Transmission losses.
(2.) Air resistance.
(3.) Resistance to traction (chiefly pneumatic tyre losses).

In the results shown below the transmission efficiency is taken at eighty-five per cent. and the other resistances are multiplied by the efficiency factor $\frac{100}{85}$ to refer them to the engine pulley as the common basis.

The horse-power at the engine pulley required to overcome the air resistance has been calculated from the following formula, which is a modification of that given, I believe, by Hutton:

$$\text{b.h.p. required} = V^3 A \times 0.00001145.$$

The brake horse-power required against traction resistance is

$$\text{b.h.p. required} = W V \times 0.0000575.$$

Where V = velocity in miles per hour.
W = total weight of machine plus rider in lbs.
A = area exposed to air resistance in square ft.

Fig. 1 shows the horse-power required against air resistance and traction separately at different speeds for a machine and rider with W = 300 lbs. The total horse-power curve shown is the sum of the vertical ordinates of the separate air resistance and traction curves.

It will be observed that above sixteen miles per hour the air resistance becomes the more important factor. Another fact which may be noticed is that at twenty-seven miles per hour the total horse-power required is double that at twenty miles per hour, and at thirty-five miles per hour it is double that at twenty-seven miles per hour, showing the very rapid increase of the horse-power required with the speed.

The curve at the top is the brake horse-power curve of the particular engine under consideration, at full open throttle and with a gear of 4½ to 1 at the different speeds.

It will be seen that the maximum horse-power is 4.3, which is developed at thirty-seven and a half miles per hour. This is exactly equal to the horse-power required at that speed, so that this particular machine can travel no faster. (I may here remark that the area opposed to the air resistance has been taken to be six square feet, a figure which does not apply to a racing rider sitting in a crouched position.)

For the fastest speed on the level, then, the gear must be chosen as follows:

Find the maximum horse-power of the engine by a brake or other test, and also the number of revolutions per minute at which it is developed. In this particular case it is 4.3 h.p. at 2,200 revolutions per minute.

Next find the speed on the "total horse-power required" curve in fig. 1 at which 4.3 horse-power is required. In this case it is thirty-seven and a half

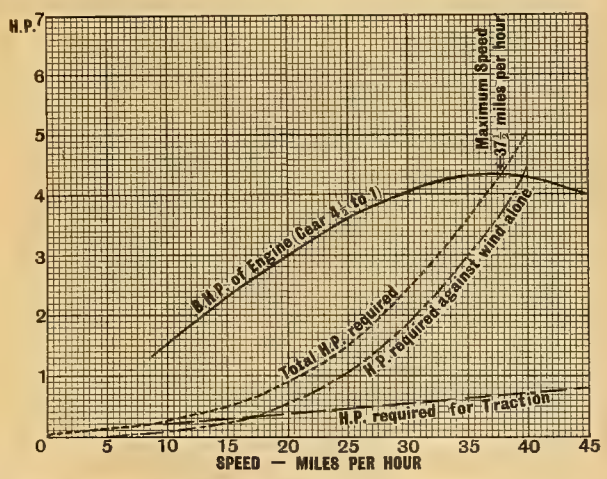


Fig. 1. Horse-power against air resistance and traction resistance on level. W = 300 lbs.

miles per hour. The required gear ratio may then be found as follows:

$$37.5 \text{ m.p.h.} = 37.5 \times 1.467 \text{ feet per second} = 55 \text{ feet per second.}$$

The distance travelled in one revolution of a 26in. wheel is $\frac{26}{12} \times 3.14 = 6.8$ feet. Therefore, number of revolutions of back wheel are $\frac{55}{6.8} \times 60 = 485$ per minute, and the ratio should be $\frac{2{,}200}{485} = 4\frac{1}{2}$ to 1.

I may add that this gear also happens to be a fairly efficient one from the point of view of petrol consumption, as the internal engine losses are very much greater near the point of maximum horse-power than they are at half load, as indicated by the bending over of the brake horse-power curve. Taking twenty miles an hour as the average speed of this machine, it will be seen that the engine is worked at a very efficient point. This does not, of course, allow for the slight loss of efficiency due to throttling at the lower speeds.

Horse-power Required on a Hill.

The horse-power required in this case includes the air and traction losses and, in addition, the power necessary to lift the machine up the hill.

The latter may be taken to be brake horse-power required $= \frac{V W}{X} \times 0.00314$ where the gradient is 1 in X.

The Selection of Gear Ratio.—

Fig. 2 gives the total horse-power required on various gradients at different speeds by the same machine and rider. The brake horse-power has also

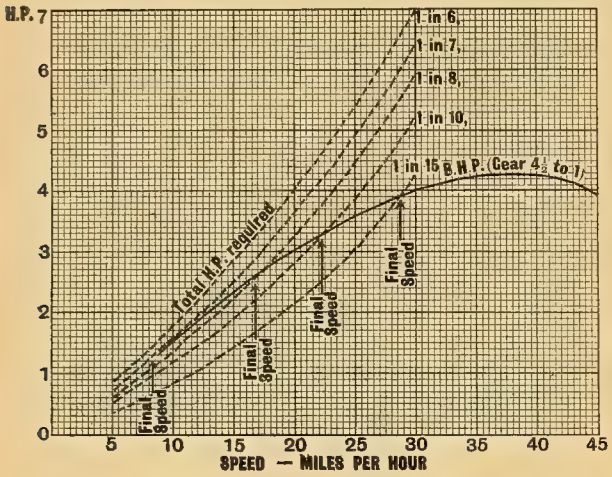


Fig. 2. Horse-power on different gradients. W=300 lbs.

been shown on this diagram. It will be seen that where the horse-power available becomes equal to the horse-power required on any particular gradient, that point determines the final speed to which the machine will settle down after the effect of the rush at the bottom has gone.

The final speeds with a gear of 4½ to 1 will be seen to be:

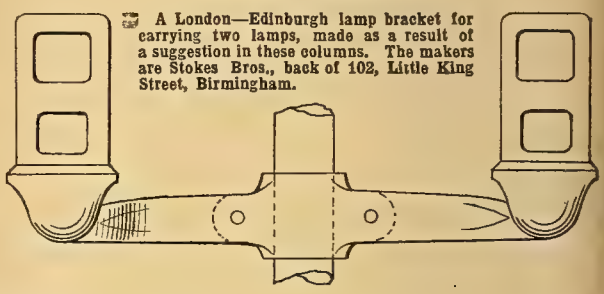
Gradient.			Final speed.
1 in 15	...	...	28.5 miles per hour.
1 in 10	...	...	22.5 ,, ,, ,,
1 in 8	...	...	16 ,, ,, ,,
1 in 7	...	...	7.5 ,, ,, ,,
1 in 6	...	...	Machine will not climb.

To Find the Best Gear.

The following are the speeds on each gradient at which the total horse-power required is equal to 4.3. The gear ratio given in the right-hand column is calculated in the same way as described above for the machine on the level. If the maximum horse-power of the engine is lower or higher, then the speeds corresponding to the actual horse-power available must be taken.

Gradient.		Maximum speed.		Best gear ratio.
1 in 15	...	30 miles per hour	...	5½ to 1
1 in 10	...	27 ,, ,, ,,	...	6¼ to 1
1 in 8	...	24.5 ,, ,, ,,	...	7 to 1
1 in 7	...	23 ,, ,, ,,	...	7¼ to 1
1 in 6	...	21 ,, ,, ,,	...	8 to 1

(To be continued.)



A London—Edinburgh lamp bracket for carrying two lamps, made as a result of a suggestion in these columns. The makers are Stokes Bros., back of 102, Little King Street, Birmingham.

MAGNETO IGNITION.

IN his remarks in a recent issue "Geoffrey" discusses the question of ignition timing as applied to magnetos. In this connection it is a point worth noting that, if the alteration of the firing position is so provided that the spark occurs always at the position of maximum strength of the field, then the range of movement required would be much less than is necessary in the case of accumulator and coil ignition. The reason for this is, of course, to be found in the fact that as the speed of the armature increases the spark produced becomes larger and hotter, and combustion is commenced and progresses more rapidly. No doubt magneto makers have depended upon this automatic timing action in designing magnetos for motor cycles without providing any means for adjusting the timing of the spark. The present method of giving the contact breaker a range of movement independently of the armature defeats its object to a large extent, because any alteration of the instant of firing either behind or in advance of the maximum point means a weakened spark, and most of what is gained by advancing the spark is lost through the spark itself being reduced in heating power. It is probable that a greater range of engine acceleration is possible with a fixed ignition point, than can be obtained by varying the instant of rupture of the primary to positions other than that at which the armature is cutting the strongest field. J.B.

[Shortly we hope to describe a device for retarding and advancing ignition, and obtaining a spark of equal strength at all speeds.—ED.]

INCORRECT SPRING FORKS.

HOW is it that so few of the spring forks on the market are designed on correct lines? The essential qualities are sufficiently simple and obvious. The shock-absorbing movement should occur in a vertical, or nearly vertical, direction, and the wheel should be so held in the forks that one end of the spindle cannot lift except in unison with the other. Sidewise rolling of the wheel in the forks should be impossible, and the front spindle should never lose its parallelism with the back one. Yet contrivances are made and sold in which up and down travel of the wheel is possible only in conjunction with a large backward and forward movement, and quite a number of types are marketed in which each end of the front spindle is independently pivoted to the corresponding fork end, so that any lateral pressure tending to lift one side of the wheel more than the other has to be transmitted to the opposite side of the fork by the spindle itself. It is not necessary to point out that in this way the spindle may be subjected to strains immensely greater than would occur if the wheel were carried in a rigid fork whose two sides were incapable of separate motion.

The essential feature for a correct spring fork is that the wheel should be carried in a rigid fork, and the fork and wheel as a whole should be provided with the necessary up and down range of travel to take up road shocks. In addition to preventing strains on the spindles and erratic steering, such an arrangement allows of the employment of a front rim brake. J. B.

The Future of Motor Cycling.

EASTER, 1908. The ROC Already Five Years Ahead

HAS STARTED A PATTERN WHICH ALL MUST SOONER OR LATER FOLLOW.

Roc hand starting	Roc hand starting	Roc hand starting.
Roc pedal operated clutch	Roc pedal operated clutch	Roc hand starting.
Roc perfect speed gear	Roc perfect speed gear	Roc hand starting.
Roc live axle	Roc live axle	Roc hand starting.
Roc low riding position	Roc low riding position	Roc hand starting.
Roc duplex frame and duplex tanks	Roc duplex frame and duplex tanks	Roc hand starting.
Roc ball-bearing engine	Roc ball-bearing engine	Roc hand starting.
Roc handle-bar control	Roc handle-bar control	Roc hand starting.
Roc metal to metal brakes	Roc metal to metal brakes	Roc hand starting.
Roc wide section belt and pulleys	Roc wide section belt and pulleys	Roc hand starting.
Roc long wheelbase	Roc long wheelbase	Roc hand starting.

The ROC is produced in three forms:

ROC 4 h.p. Motor Bicycle, Single-cylinder - 48 Gns.
ROC 5-6 h.p. Twin - - - - 55 ,,
ROC Clutch-speed Gear Conversion - - 10 ,,

A. W. WALL, Ltd., Roc Motor Cycle Works, Birmingham.

London Agents: THE SERVICE CO., 292, High Holborn, W.C.

Telegrams: "ROC, BIRMINGHAM."

ALL who ride or try THE L.M.C.

confirm our claim that the engine

ALWAYS STARTS FIRST PUSH OF PEDAL,
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ALWAYS UNDER PERFECT CONTROL,
ALWAYS RELIABLE AND EFFICIENT.

Designed by Mr. W. J. LLOYD (late director of the Quadrant Cycle Co., Ltd.) Designer of the "ORIGINAL" QUADRANT ENGINES (Birmingham make). Mr. Lloyd's experience in Petrol Engine design and construction dates from the early introduction of motor cycling.

A VISIT TO OUR WORKS WILL CONVINCE YOU. TRIALS ARRANGED.

EVERY ENGINE CONTAINS OUR BALANCED PISTON and other important improvements of great value to the rider.

Write for leaflet, "Convincing Criticisms," and "Riders' Opinions," post free. Illustrated list free on application.

IMPORTANT TO RIDERS OF QUADRANTS (Birmingham make).—L.M.C. SPARES AND ENGINE REPLACEMENTS for these machines can be supplied from stock. PROMPT DESPATCH. LIST FREE. We have several excellent second-hand 3 h.p. and 3½ h.p. Quadrants (Birmingham make) for disposal. Re plated and re-enamelled as new. Full particulars on application.

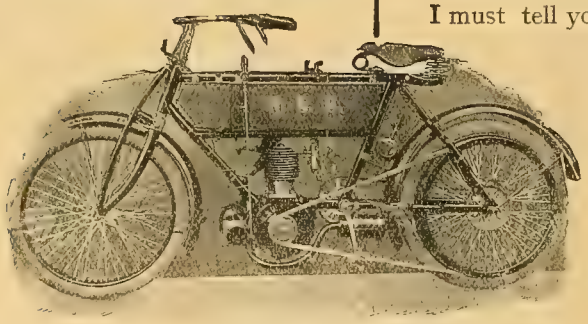
Agencies where machines may be seen, and all further information obtained.
Bristol & District—C. A. Hunter, 45, Park Street. Cardiff & District—R. Bevan, 31, Castle Street.
Manchester & District—James Hall & Co. (Manchester), Ltd., 228, Stretford Road.

Makers: THE LLOYD MOTOR AND ENGINEERING CO., L.M.C. Works,
Tels.: "Obliging." **132, MONUMENT ROAD, BIRMINGHAM.**

Why wait for delivery?

By placing your order for an N.S.U. delivery of any model is ensured at once.

An instance: ☛



3½ h.p. Single cylinder N.S.U.

Progress Cycle Depot,
New Road, Blackpool,
March 8th, 1908.

Gentlemen,

I received the 3 h.p. Motor Cycle yesterday and I am delighted in so quick a dispatch after you received my telegram. I was only 24 hours getting the machine after my order, which I think is a record in all my 15 years' experience, considering the distance of about 300 miles it had to come. I must tell you I think it is the smartest Motor Cycle on the market to-day. Not only do I think this but all the other motor cyclists in Blackpool and District.

Yours faithfully,
(Signed), J. STANWORTH.

We have a repair department especially organised and equipped to undertake all repairs. Spare parts can be obtained per return. The N.S.U. Two-Speed Gear can be fitted to any existing model.

Our 1908 Catalogue will be sent on request. Write

The N.S.U. Motor Co., LTD.,

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N.S.U.

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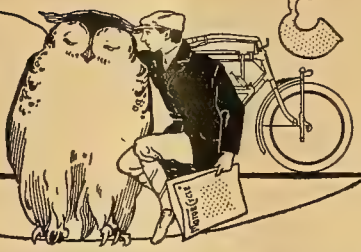
QUESTIONS & REPLIES



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

More Air Wanted.

(1.) I have recently bought a 3¾ h.p. magneto N.S.U. It will only start with air inlet fully open. Does that mean it wants an extra air inlet? If so, where? (2.) When slowing up by raising compression lever the engine backfires before stopping. What is the reason?—T.H., Leeds.

1.) Yes, it seems as if an extra air inlet is required. You will find auxiliary shutters on the sides of the carburetter which can probably be opened further. The extra lever should be closed at starting and opened when under way. 2.) You can cure the backfiring by closing the throttle when pulling up, or switching off the spark.

Piston Rings on F.N. Machines.

I have a 2¾ h.p. F.N. motor bicycle, and find on stripping the engine to clean the piston and combustion head that there are only two rings fitted to the piston. Kindly say if there should be two or three rings fitted to this engine, as one of the grooves is minus a ring.—L.L.C.

We find on communicating with the makers that the only F.N. engines fitted with three rings are the 3 h.p. and 3½ h.p. four-cylinder engines, and the 1¾ h.p. lightweight. The 2 h.p., 2½ h.p., and 4½ h.p. four-cylinder engines are fitted with two rings only. The remaining groove is to assist in the lubrication, we believe.

Sidecar Attachments.

(1.) Is it legal to ride a motor cycle with a car driver's license? (2.) Is it compulsory to have a separate number-plate on the back of a sidecar when the back number on the bicycle is visible, and if so, has it to be illuminated at night? (3.) I have noticed that you advise two-speed gears with twin engines and a sidecar. Do you consider a two-speed gear indispensable with a gear of 5½ to 1, or is it a luxury? (4.) How much more power does it take to drive a sidecar than a trailer?—H.W.E., Burslem.

1.) A car driver's license allows the holder to also drive a motor cycle. 2.) No, a separate number-plate is not required on a sidecar, nor is it compulsory to have it illuminated at night. We should, however, advise you to carry a rear light for your own safety's sake. (3.) With a sidecar, a two-speed gear is practically indispensable for touring purposes. (4.) Very little more power is required to drive a sidecar than a trailer, except when travelling against the wind; the larger area exposed to the wind then requires more power to propel it.

The Use of Two Coils.

(1.) I carry two accumulators and have switch for same. I also wish to carry two coils—one trembler and one non-trembler. Kindly tell me how to wire up? (2.) I have travelled over 18,000 miles with my present machine. Carburetter Longuemare, slots soldered up, and one small hole in centre of nipple, choke tube 21. These have never been altered, nor has the exhaust ever been connected up to carburetter winter or summer. I ride every day wet or fine. Lately I have had a lot of trouble with engine coming to a stop very quickly. First signs a peculiar popping sound in exhaust, but no misfires. Second, engine begins to slow down. Third, and almost immediately stops as if all brakes were on. I get off and flood carburetter and start again at once, and the same thing happens again in a quarter of a mile. Flooding carburetter on first signs does not help matters. It now does this every day—wet, fine, fog, frosty, or warm. Petrol supply and carburetter are all clear. Wires good, plug ditto. Coil Bassée-Michel quite new. Can you tell me where to look for the fault? The engine is a 3½ h.p. Minerva, air-cooled by fan.—A.M., Hanley.

(1.) You seem to have overlooked the fact that in the case of a non-trembler coil the spark takes place when the contact is broken, and in the case of a trembler coil the spark takes place at the moment the contact is made. You would therefore have some difficulty in correcting this trouble, and we should hardly think the conversion would be worth while. (2.) The trouble mentioned in your letter is a most mysterious one, and it is almost impossible for us to say what is its cause without personally examining the machine. Are you sure that the valves are working properly and do not become jammed at any time? Also overhaul the wiring for anything that may cause a temporary short circuit. If the coil is a trembler, it may be due to the platinum points sticking.

High Gear and Exhaust Valve Lift Affecting Hill-climbing.

My 3½ h.p. N.S.U. is quite fast on the level but weak on hills, and I suspect two things, but should like your opinion on it. (1.) The pulley is 4in. in diameter and belt rim 16in. in diameter. This is a gear of 4 to 1, is it not? Do you think this is too high for my weight (11½ stones), engine 80 by 80 mm.? (2.) I do not think there is sufficient lift of the exhaust valve because, if when I am running about usual speed I lift Bowden exhaust lifter up about ⅛in., I seem to feel quite a difference in power; in fact, I feel a distinct pull forward. So I think that the exhaust does not lift sufficiently. What is the best way to measure the lift, as it is rather difficult to see on my engine? Will it be the tappet or the cam worn? (3.) The grooves of the pulleys are ⅜in. wide, and belt is 13-16in. wide. I should very much like to know whether I could fit a 1in. pulley and 1in. belt rim to my machine as it stands, as I need a new pulley, and so would like to make the change now. Would you recommend a belt rim of larger diameter, say 19in.? What gear would you recommend me to use, 5 to 1? I do not want great speed, but general good running and hill-climbing. I may say engine has just been overhauled and all carbon deposit, etc., scraped from cylinder and piston.—F.B.B., N.B.

(1.) It appears that the gear of 4 to 1 is rather too high for your weight. (2.) The lift of the exhaust valve is probably sufficient, and very likely too much. The increase of power is due to your not allowing the valve to close completely, with the result that more air is admitted to the mixture during the induction stroke. Going uphill, slightly raising the valve in this manner would be of no advantage, but on the level it gives a slight increase of engine speed. Probably it is an indication that the carburetter is not receiving sufficient air at high speeds. (3.) There is no reason why 1in. pulleys and belt should not be fitted, but both pulleys must be 1in. A ⅞in. belt is quite sufficient for an 80 by 80 engine. Yes, the 19in. belt rim would be much more suitable. 4¾ or 5 to 1 gear would be about right if the wheels measure 26in. Poor compression would account for bad hill-climbing.

Size of Wheels and Gear. Magnetos.

(1.) Does the size of the road wheel affect the gear of the machine, as, for instance, if there are two machines, one with 24in. and the other 26in. wheels, both geared 4½ to 1, has the one with 24in. any advantage over the 26in. on hills? I have been told that the small wheel lowers the gear, but should like your opinion. (2.) How often do the magnets of a magneto require remagnetising? Is it possible to tell when the time is getting near for it to be done, as although the magneto sparks all right now, I wish to be quite sure it will be all right for the whole season?—A.J., Scarborough.

(1.) The gear ratio remains the same if pulleys are the same size, but the smaller the wheels the less distance they cover at each revolution, so it can be said that small wheels lower the gear. A machine with 24in. wheels and the same gear ratio would be faster uphill than one with 26in. wheels. (2.) The magnets should not require remagnetising oftener than once in three years, and not then unless armature is removed from tunnel without placing a keeper across the magnets.

Misfiring and Stoppage of Engine.

My machine is a 2¾ h.p. Vindec with F.N. engine, automatic inlet valve. It has been standing idle for some time, and when I took it out it started right away after injecting petrol, but stopped in a few seconds. I cannot make it keep going, unless I continually flood the carburetter. The jet is quite clean, but still I cannot succeed in keeping the engine going. Could the inlet valve have anything to do with the trouble? Would you advise me to fit to a 5½ h.p. twin Rex a R.O.M. contact breaker? Does it fulfil all that the makers claim?—T.B.G., Ireland.

The trouble seems to be entirely due to the carburetter, which appears to be getting too much air. See if the choke tube has become detached, or that there is no special leak through which more air than is required can get. If you can find no cause, try partially obstructing the fixed air supply by fitting a sleeve behind the gauze-covered funnel. Anything will do temporarily, so as to aid you to find the trouble. For instance, a piece of rubber tube fitted in the orifice would reduce the air supply to a considerable extent. We do not think the trouble is caused by the inlet valve if the spring is satisfactory and the lift is about right. It might be covered with lubricating oil and sticking occasionally, in which case it should be washed with paraffin. Yes, the contact breaker in question should effect an improvement in the running of your engine.

How to Increase Speed.

I am trying to make my friend's single-cylinder 1905 model Rex motor cycle attain a better speed, and keep up with my twin of the same make. I have scraped away all carbon deposit from piston and cylinder head, fitted new exhaust and inlet valves well ground in, obtaining perfect compression; also made new tappet for exhaust, giving nearly ¼in. lift, and when the valve is seated there is plenty of clearance between valve stem and tappet to allow for expansion. The ignition appears to be good and not late. When retarded, spark occurs at top of stroke, and yet it will not obtain the speed it ought to, although it climbs hills excellently. (1.) Would you kindly suggest anything else I could do? (2.) Should a mechanical inlet valve lift when the piston is just over the top after exhausting, or about quarter-way down?—Y.L., Birmingham.

(1.) The symptoms described in your query seem to show that the carburetter is not receiving sufficient air at high speeds; you must therefore experiment and try the effect of a larger air adapter. You have not mentioned the coil. If it is a trembler the platinum points might be trimmed and the screw adjusted as lightly as possible consistent with even firing at full engine speed. The gear might also be raised slightly. Have you tried new valve springs? (2.) You should set the mechanical inlet valve to close simultaneously with the piston reaching the bottom of the induction stroke.

Interested in Motor Attachments.

I have a Sunbeam two-speed gear (59 and 78) cycle fitted with oilbath gearcase, frame 24in., weight about 33 lbs. (1.) Would my machine be strong enough to bear the strain of a 1908 1¼ h.p. Motosacoche set? (2.) Could I average fifteen miles an hour with this combination, say from London to Brighton and back? My weight is ten stones. (3.) Would the change-speed gear be an advantage for starting easily and assisting machine to climb steep hills? (4.) In your opinion is the Motosacoche a well made and reliable machine, and suitable for rides of 100 miles or so at a moderate pace?—A.H., West Ealing.

(1.) The cycle in question might be strong enough with the addition of spring forks, but we should advise you to consult the makers of the Motosacoche and take their advice, as to have too light a bicycle with a motor on it is apt to prove dangerous to the rider. You should also ascertain if there is sufficient clearance for belt rim and belt. The majority of pedal bicycles are too narrow at the back and chain stays. (2.) Yes, you could easily average fifteen miles an hour. (3.) A change-speed pedalling gear is undoubtedly an advantage for assisting the machine by pedalling. (4.) The attachment in question is well made and would prove quite reliable with fair usage and attention.

We have had under consideration for some time the introduction of a new feature in our "Questions and Replies" columns. Although we endeavour to diagnose a complaint as well as we possibly can from particulars (sometimes very scant) given by correspondents, it is impossible to trace a fault accurately every time, without having the machine by us for examination. This being the case, we shall continue the "Questions and Replies" as hitherto, but we shall be also willing to publish, when space permits, short letters from riders of the particular machines enquired about, who have experienced similar failures, stating what they think will cure any trouble described. Different makes of machines have ailments peculiar to them, and no one can possibly diagnose a complaint better than the rider who is thoroughly conversant with his mount. In any case, an exchange of ideas will do much good, and we have pleasure in publishing a letter received from "A.S." (Northumberland) in reply to "Puzzled," who enquired in the issue of March 11th for information with regard to a second-hand four-cylinder F. N. motor bicycle.

Seeing your query under the name of "Puzzled" in *The Motor Cycle*, and having learned to ride on a second-hand four-cylinder F.N. which came to me entirely out of gear, I am very keen on the four-cylinder F.N., but realise that it takes some mastering. My old 1905 machine, improved by adding the later transmission, is quite good enough for me, and holds its own with any machine about here.

1. I presume you have changed the plugs and still found the front cylinder misfire, so presume plug is O.K. Have magneto contacts .5 mm. apart when broken.

2. See if the rings are sound and set with their slots evenly spaced round the piston. The middle ring should be slotted opposite to the other two. If they seem to have worn much put in three new rings and see that all carbon is cleaned out of the grooves in the piston with a sharp knife, or you may think the rings are too big, when they are not.

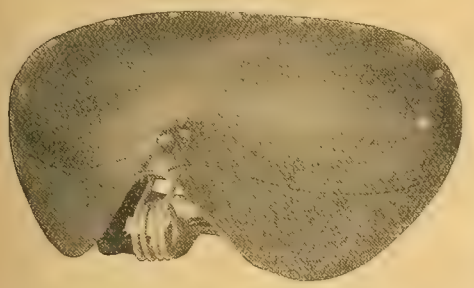
To make sure that the inlet valve does not stick change it with one from another cylinder; have all the inlet springs of equal strength. Then see if the disc in the distributer is not worn hollow. If so, get some emery and clean the whole distributer out. File (or fit) the brass discs flat. Always keep them dry. Some oil gets out past the end of the camshaft, and I fit little washers of cloth to prevent it getting into the distributer.

If it still misfires I can only suggest that the tappet is too long, and the exhaust valve does not close down hard. There should be the least bit of play between the tappet and the end of the exhaust stem, just enough to feel and no more, or else if the machine is old it does not lift enough. I solder little pieces of an old saw on to the tappets every year to get as much lift as possible, but there must be just as much play as will let a piece of thin paper between. I cannot think carburation is at fault, as three of the plugs are right. Finally, make sure the wire is sound from the distributer to the plug. I have such confidence in the machine that I feel sure your fault can be remedied.—A.S., Northumberland.

BROOKS

BROOKS Motor-cycle Saddles

are the most easy and smooth riding seats for the motor cycle. They are made in two styles—B.100 for the ordinary frame and B.105 for the special frame having the seat pillar extended horizontally from the top tube. In other respects they are alike—and both are the most popular models made.

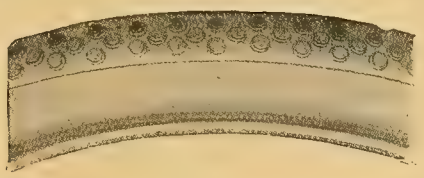


BROOKS Spring Seat

for the luxury-lover are a revelation. They are constructed on the same anti-vibratory principles as the B.100 model, but in shape are of chair seat proportions. Nothing so comfortable is the verdict of all riders who have tried a spring seat—would you like one.

BROOKS "Stratex" Motor Belt (Berisford's Patent)

is pre-eminently the belt for all motor cycles, etc. It suits all makes, and its special features cater for just what every motor cyclist requires—strength, grip, even pull, flexibility, smooth running, and everlasting wear. These are its leading features and those which make this belt the very best to buy.



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have earned rich expressions of satisfaction from all users. We have many letters testifying to their perfect efficiency in defying puncture and skidding. The perfect chrome leather—strong and well fitted. The special "Long-life" Studs—same pattern as used on the big cars, only smaller—correct size, shape, and fit—these are the advantages of the Brooks non-skids. Do they appeal to you?

Ask for Complete Catalogue of these and our many other specialities.

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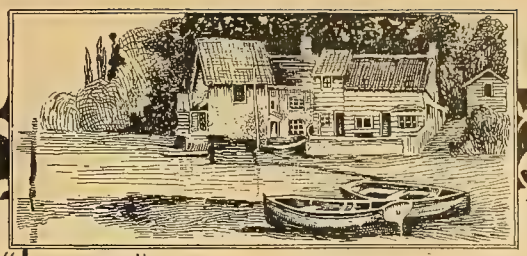
Occasional Comment



By "Ixion"

Handle Grips.

Apropos of my note on a patent hooked handle grip designed to avoid the hands slipping off the bar, Mr. Wells writes me about another patent device named the Kumfo, made of sponge rubber, and designed with the double purpose of affording a surer grip and insulating the palm and fingers from vibration. Mr. Wells used these grips in the last Edinburgh run, and I can well understand they saved his hands a great deal. The question of the ideal grip is a difficult one. One firm uses ordinary pedal cycle grips, and the inverted levers keep the hands on; the Vindec people use the Kumfo; other firms use a corrugated celluloid pattern with a raised ridge round the outer edge. I find objections to all. The edge of one's glove or the hem of one's coat sleeve is apt to get nipped by the part of inverted lever which protrudes from the bar when lever is operated; the celluloid grips get very greasy when the hands are hot, and are a little bit slippery even when used with gloves or cool hands; and, though the rubber grips are splendid insulators from vibration, I do not consider they safeguard the grip at all when the hands are only lightly clenched on the bar, and that is just the moment when a bump over a stone does the damage. I am going to try the combination of Kumfo grips first with inverted levers, and then, if I can get a pair of the Hill hooked grips small enough, I shall try a pair of Kumfos on the top of them—the Kumfo for insulation, and the hooked grip for safety. But no doubt the only absolute safeguard is for the rider to keep a firm grip of his bar and a keen watch on the road whenever he is exceeding thirty miles an hour. Some youthful riders take a delight in swaggering along at high speed with one hand on the throttle, and only holding the steering bar straight with the palm of the other hand. This is courting a sudden and rather abraded exit from this world of trouble.

Permanent Sidecars.

"Bandsman" reminds us on page 190 of a rather interesting chassis built to his order, and illustrated in this paper on July 31st of last year. It consisted of a sidecar frame permanently brazed to a motor bicycle frame. This destroys one feature which is largely responsible for the popularity of the sidecar, to wit, instantaneous detachability; but if a rider does not use his cycle as a solo, it is well worth doing. With detachable sidecars there is always the possibility of losing important nuts, and I have also found that in wrenching the outfit round a corner rather sharply the sidecar clips will occasionally slip a little on the frame. This is obviated by taking corners at a reasonable speed; but when there are no hedges I plead guilty to enjoying an experiment at an open corner, and seeing at how high a speed I can round it, provided there is no one about. My joy at taking a right-angled corner on a wheel and a half has two or three times been seriously modified by finding I had made the sidecar slip out of its true position on the frame, and that for the rest of the journey I had to keep the helm over to one side even when driving straight. A brazed, homogeneous frame naturally means increased strength and rigidity, as well as permanence of adjustment.

Lamp Brackets.

We are evidently not going to suffer from lack of good headlights this year, but I must issue a word of warning in that connection. The Autoclipse lamp —now no longer on the market, as it could not be produced at the price—was not so heavy as several of the new headlights recently described, but it was heavy enough to snap some of the standard "tongue" brackets on the market in a very short time. Now, a motor cycle lamp must be heavy—the slightly enlarged pedal cycle types are no real use for night riding at motor cycling speeds—so purchasers of efficient headlights will be well advised to use double armed or prong brackets on car lines, clipping them to the stem of the handle-bars. One of these new lamps has a very practical little feature; it is provided with folding legs, so that it can be propped upright on the ground to illuminate any road side repairs.

Mechanical Nipples for Bowden Wires.

I am sorry to see these have been withdrawn from the market. One of my friends gave me a handful twelve months ago, and they have been invaluable. As the maker says, they are "not a success," in that they are no substitute for soldering, and the joint made is only a temporary one. But one is very grateful for a roadside device which will enable one to repair, say, a broken exhaust valve lifter by the road side miles from anywhere. I think the sales of these nipples must only have been disappointing because the maker failed to advertise them amongst motor cyclists, and if he still has his patterns I am sure he will find plenty of customers. In this connection I will repeat the ancient tip about a broken valve lifter wire, as several riders of my acquaintance have met that tiresome mishap already this year. Take a coin, knock a hole in it with a nail, tie one end of a piece of string to the coin and the other to your wrist; put the coin between the valve and its tappet, pedal till there is way on the machine, and then jerk the coin out and haul it in for use after the next stoppage. Control speed by throttle or switch. But this is a very makeshift expedient. [On a four-cylinder it would cost 4d.—Ed.]

The Revocation of British Patents worked Abroad.

By DOUGLAS LEECHMAN, Asste. Inst. Patent Agents, Barrister-at-Law.

ONE of the most important innovations effected by the new Patents and Designs Act (7 Ed. VII., Chap. 29) is the provision made for the revocation, under certain circumstances, of patents worked chiefly outside the United Kingdom.

The section (27) dealing with the subject prescribes that at any time not less than four years after the date of a patent, and not less than one year after the 28th of August, 1907, *i.e.*, the date of the passing of the Act, any person may apply to the Comptroller General of Patents for the revocation of the patent on the ground that the patented article or process is manufactured or carried on exclusively or mainly outside the United Kingdom. The Comptroller is to consider the application and, if, after enquiry, he is satisfied that it is well founded, and the patentee fails to prove that the patented article or process is manufactured or carried on here to an adequate extent, then the Comptroller may revoke the patent. The provision is not absolute; there are certain modifications and exceptions.

Modifications and Exceptions.

Thus, if the patentee can give satisfactory reasons why the patent is not worked here to an adequate extent, the Comptroller may make no order against him. Again, instead of revoking the patent forthwith, the Comptroller may make an order giving the patentee a certain time within which to carry out the working of the patent to an adequate extent. If the patentee does not comply with the order within the time mentioned, and he can give a good excuse for his failure, the Comptroller may extend the time, but not for more than a year. At the end of the period, original or extended as the case may be, the revocation order will become absolute. There is an appeal from the Comptroller to the High Court of Justice.

By Article V. of the International Convention for the Protection of Industrial Property, it is provided that the introduction, by the patentee, into a country where a patent has been granted, of articles manufactured in any of the contracting states, shall not entail forfeiture of the patent. But the patentee is bound to observe the laws as to working patents of the country into which he introduces the patented articles. The new Act provides that no revocation order shall be made at variance with any treaty, convention, arrangement, or engagement with any foreign country or British possession, and this would include the article just referred to.

How the Act applies to Motor Cycles.

The section was introduced largely with the object of relieving the dyeing industry from a burden which had become very oppressive. Our Continental competitors took out patents here and sold the dyes here, but made them abroad, so that neither the British capitalist nor the British workman benefited by the grant of the patent. But the matter is not without interest to the makers and riders of motor cycles, which are so largely manufactured abroad, and which provide the subject matter for so many patents.

Although this Section 27 is new, it is a logical outcome of the Statute of Monopolies of James I. For that statute, which is still the foundation of our Patent Law, while making most monopolies illegal, specially excepted letters patent "hereafter to be made of the sole working or making of any manner of new manufactures within this realm." It is quite obvious that anyone, whether a Britisher or a foreigner, who patents an invention here, but has it manufactured abroad for sale in this country, is infringing the spirit of the old statute. The establishment of the manufacture compares favourably in importance with the evolving of the invention, as is shown by the fact that a man who sees a new thing abroad is considered to be an "inventor," in the sense that he can take out a valid patent for the idea in this country.

It will be observed that no one can apply for revocation under this section before the end of August next, and then only in respect of patents dated before the 28th of August, 1904, but patents of later date will become subject to attack as time proceeds. It should be remembered, however, that patents granted under the provisions of the International Convention are often really dated nearly or quite twelve months earlier than the date indicated by the number and year printed on the specification, and many of the patents aimed at by the section are filed under the convention.

What the Comptroller may consider working "to an adequate extent" it is, of course, too early to determine, but it is probable that he would not be satisfied with the mere assembling here of parts made abroad unless the essence of the invention consisted in the manner of assembling rather than in the manufacture of the individual pieces.

The main idea is that the patentee's invention shall become part and parcel of the manufactures of this country. And what is manufacturing "exclusively or mainly" outside the United Kingdom is probably best interpreted by the corresponding expression, "to an adequate extent." It would hardly be reasonable to expect a foreign patentee to manufacture "mainly" here an article the bulk of the demand for which necessarily came from abroad. A Russian having a British patent for sleighs could hardly be expected to carry out the manufacture mainly in this country. The Comptroller would probably consider the scarcity of gold (in its natural state!) in this country a satisfactory reason why an American should not work to a preponderating degree his British patent for extracting gold from the ore.

Establish Works or Grant Licences.

The best way for foreign patentees to comply with the section is, of course, to establish works here. Failing this, they should make strenuous efforts to grant licences. The offering of licences could not be construed as manufacturing or carrying out the patented article or process, but the refusal of genuine offers might induce the Comptroller not to make a revocation order, for, it must be observed, the word is "may," not "shall"; the matter is left very much to his discretion. On the other hand, the fact that the inventor had neither attempted to manufacture here nor to grant licenses would tell against him.

The evil is not unlike that of a dealer who takes up an agency not with the object of selling the manufacturer's goods, but in order to "bottle" them—that is, prevent anyone else selling them as rivals to those he prefers to push. Section 27 draws the cork or breaks the bottle, according to circumstances.

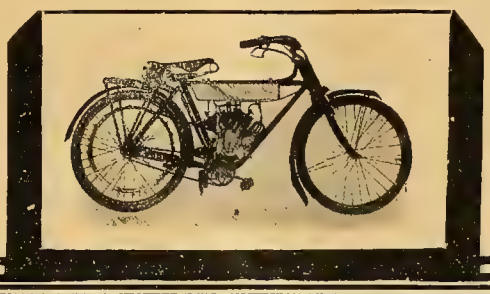
MOTO REVE

"The Motor Cycle" last week said:

"It is a most pleasant little machine to ride, is very silent, gives no trouble, and is just the machine for those riders who desire a lightweight with some reserve power. . . . If the machine continues to give the same satisfaction as it has done up to the present, we shall have no hesitation in recommending it as quite the best of the lightweight patterns that we have yet had the opportunity of riding."

May we send you fuller particulars?

Ask for List C.



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The "ZENITH," constructed on the "Zenith Bicar" twin-frame spring suspension principle.
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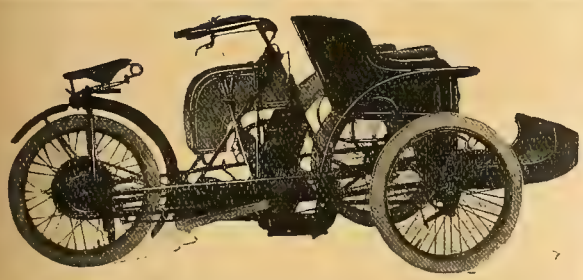
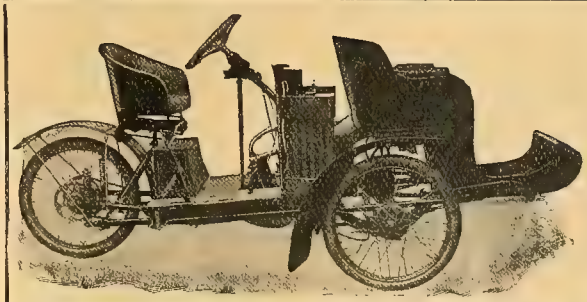
TWO'S COMPANY—AND JOLLY GOOD COMPANY, TOO—ON EITHER.



The famous "Zenith" Tricar, with 6 h.p. J.A.P. twin-cylinder engine, air-cooled, chain drive, two-speed gear, handle starting, Longuemare carburetter, double accumulators, Brooks' saddle for driver, and finest fitments throughout. Price, with coach-built body, **75 guineas**; with best cane body, **72 guineas**. A marvel of value!



The luxurious "Zenette" Tricar-de-Luxe, with 6-7 h.p. J.A.P. twin-cylinder engine, water-cooled, thermo-syphon system, chain drive, two-speed gear, open frame, wheel steering, bucket seat for driver, finest coach-built body for passenger. Present price, **90 guineas** (but shall shortly have to advance, in all probability).

Both are lowest nett cash prices. No deferred payments or exchanges can be entertained, both prices being cut exceedingly fine considering the splendid materials and high-grade workmanship.

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Sole Manufacturers of the "Zenith Bicar" and "Zenette" Spring-frame Motor Bicycles-de-Luxe, and of the marvellous "Gradua" infinite Change-speed Gear. [Can be fitted to new belt-driven machines (only).]

In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

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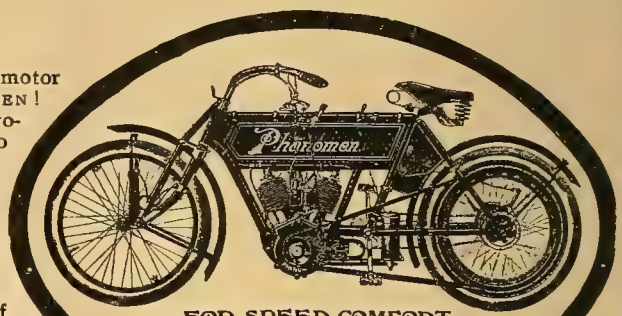
THE HALL MARK OF MECHANICAL EFFICIENCY.

ONE LEVER CONTROL.

It is astonishing what can be done with a powerful motor cycle in congested traffic, if *that* machine is a PHANOMEN! No other motor cycle has the advantages of the Two-Speed PHANOMEN. You have *no* starting handle to keep, lose, or worry about, no hard work to start up, no running alongside, but just a "push of the pedal" whilst seated. You cannot understand it? We are not surprised! but we are willing to make you acquainted with this "new method of control by ONE LEVER," which actuates in a most simple manner the free engine, the low gear and the high gear, and yet allows "very gradual" engagement of either gear when desired. No shock! no jar! no dog clutches! no sliding pinions! but metal to metal clutch and band brake of large dimensions. Clutch 6½in. diameter for high gear, brake 6¾in. diameter for low gear; double steel hoop. You can keep pace with the most congested traffic without leaving the saddle. You can stop your engine as often as you wish for restive horses, etc., and *start up again without dismounting!* Our machines start up easily *on the road*, as do other machines *on the stand*; in fact, more easily! Trial runs with pleasure. From **£37**, magneto included. Send for list.



FOR SPEED, COMFORT, DURABILITY, SILENCE AND ABSOLUTE CONTROL IN TRAFFIC.

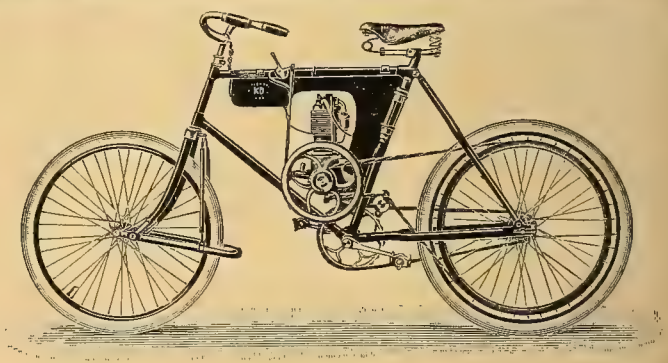
Showroom: 49, King Square, President Street, Goswell Road, E.C.; also at the Service Co., Ltd., 292, High Holborn, W.C.

PHÄNOMEN MOTORS.

"K.D."

FEATHERWEIGHT MOTOR CYCLE

FREE



1¾ H.P. **Weight 69 lbs.**

With a view to advertising our K.D. light weight motor cycle, we are offering to every reader of "The Motor Cycle" an opportunity of acquiring one of these popular and efficient 28 guinea machines absolutely gratis.

This cycle was exhibited at the Stanley Show and created great interest owing to its efficient construction and power for weight.

All you have to do is send for one of our mouth sirens, price **2/6**, and upon receipt of your P.O. we will forward one of our latest mouth sirens (guaranteed the best road clearer on the market), which is in itself full value for the money, together with a descriptive leaflet of the K.D., and an entry form for you to fill up stating the reason why you consider you should be awarded a K.D. free. These forms will be forwarded to Mr. B. H. Davies, the popular writer for "The Motor Cycle," with only a number as a means of identification, and he will judge which is the best reason and award the K.D. motor cycle to the winner. The bicycle can be seen at our showrooms, where all communications are to be addressed:

64a, POLAND ST., W., and 13a, BROAD ST., E.C.

Competition closes May 15th, and the Winning "reason" will be published in "The Motor Cycle," on May 27th.

LEO. RIPAULT & CO.,

Sole agents for the K.D. featherweight.

Valve Lifters for Twin Peugeots.

AT a club run last year I was struck with the number of twin Peugeot engines in use. I was also struck, though not so agreeably, with the fact that on ninety-nine per cent. of these machines where Bowden cable was employed the valve lifting mechanism was not arranged so conveniently as it might have been. It is in the hopes of aiding readers to improve this portion of the control on an otherwise successful and satisfactory engine that I have written the following details. And here let me remark that the fault is not due to the Bowden principle, which gives excellent results if properly applied, but rather to the incorrect design of lifting levers and certain small but important points.

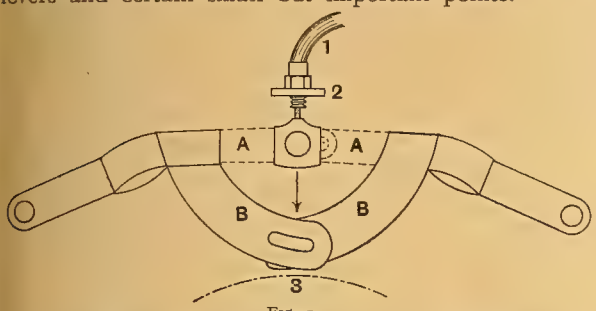


FIG. 1.
1. Bowden cable. 2. Bracket with stop. 3. Top of timing case.
B.B. Parts substituted for A.A., which are removed.

If one looks at the lifters of a twin Peugeot it will be seen that for all intents and purposes they are straight levers of the second order (A, fig. 1). It will also be observed that these levers have only about ¼in. available lift on account of the cramped position of the stop bracket and the carburetter (if the latter is between cylinders) just above the shackle holding the levers.

The consequence of this arrangement is that, owing to stretch, maladjustment, and wear, the valves soon fail to lift, the valves soon become burnt, starting is difficult owing to badly released compression, the hand grips the valve control in vain, and under the strain the cable breaks.

The remedy is the conversion of straight levers into bent ones (B, fig 1). The old valve levers are removed (cylinders must be raised for this!), and curved pieces of metal pinned and brazed on of the shape shown at B B. It is important that this arm is attached to the concave side of the cranked portion, in order that the two resultant pieces may be brought central again, so that power may be applied in the plane of the levers. A rough plan of the arrangement (fig. 2) will illustrate my meaning. If the

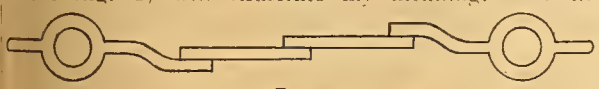


FIG. 2.

metal is brazed on the wrong side of either of the lifters the levers will be found quite a distance apart laterally, and the shackle will not go over them.

The redundant pieces A A are next cut off with the saw, a hole drilled and slotted as in the discarded levers, and the whole filed up to a finish and fit. It will thus be understood that by this means the power arm is lowered by about 1½in., which, of course, means that there is now that amount of effective pull. If it is thought desirable, the bracket and stop may be lowered also, so as to avoid the sharp bend under the carburetter.

The mechanical mind will at once see that by slotting the new levers one above and one below the centre line one lever can be raised in advance of the other. (There are other methods, but this is the best.)

Since adopting this method on my twin I have not only had no trouble as regards valve lifting, but have been able to start easier, keep my valves in better condition, control on one cylinder in traffic, and, moreover, have avoided sharp bends in the cable, so conducive to breakage, and provided for easy repair in the remote event of breakage.

A few remarks as to the finishing details will not take up much space.

I discarded the Peugeot shackle (which is a shackle and nipple combined), and finished the cable in the classical way by soldering on a nipple and burring over the strands. This is threaded into a Bowden shackle, and here, again, I would offer the hint to slot the nipple hole in the shackle by means of saw cuts, as shown in fig. 3. It makes assembling and dismantling infinitely easier, and if the hole in the stop bracket is similarly treated, the whole of the cable and levers can be removed bodily from the engine and worked at with ease on the bench.

FIG. 3.
Method of slotting shackle and stop bracket.

A coil pull off spring between stop and shackle is a refinement, but not a necessity.

I may add that as a rule the existing Bowden cable is long enough to be retained, and may be used by cutting off the necessary length of outer member and drawing the inner wire down to the required point.

The whole improvement need not cost more than a few pence, and it is worth it.

B. RICHARDSON BILLINGS.

Price and Co., 11, Mount Pleasant, E.C., advise us that they have been appointed sole London agents for the Lincoln Elk motor bicycles. Samples of these machines can be examined at the above address.

How often one sees under the heading of "Hints and Tips" and "Mechanical Notes" a tip informing readers how to detach piston rings. The information usually given is to obtain two or three strips of tin and slide the rings over the tin when the strips are spaced out at equal distances around the piston. This does very well as a makeshift, but why go to all that trouble when a little tool can be supplied for a few pence which will detach any small ring? The tool in question is in shape like a pair of ordinary gas pliers, but the jaw movement is reversed, that is to say, the jaws when inserted in the slot of the piston ring expand under pressure and the ring can be removed in a second. It requires a little care in expanding the ring to prevent breakage, but anyone without the slightest mechanical knowledge can instantly detach a ring with this instrument. If any reader desires a pair of these pliers we shall be pleased to tell him where they can be purchased.

CURRENT CHAT.

Special Features.

HOW TO WIN HILL-CLIMBS (Illustrated).

THE CHOICE OF GEAR RATIOS.

The Demand for Motor Cycles.

So far from there being any falling off in the demand for motor cycles, it is interesting to note that the Rex Motor Mfg. Co., of Coventry, are advertising for experienced mechanics for a night shift to cope with the demand for Rex motor cycles.

Police Trap.

A correspondent informs us that a trap is now working on Hadley Common. It begins at a point opposite a red building about twenty yards on the London side of Hadley High Stone, and extends for about one-fifth of a mile, or half-way across the common.

Cambridge v. Oxford.

On May 30th the Cambridge University M.C.C. and the Oxford University motor cyclists will meet in a match either at Sharpenhoe or on the Brooklands Track. This meeting, we presume, is to be made an annual affair, after the style of the 'Varsity Boat Race.

Speed Limit on Hills.

The ten miles limit on the Sevenoaks Road through Bromley is now in operation. The warning boards are of an original and improved type, viz., plain white discs under which in lettering, red on white, appears "ten miles." There has been a marked diminution in the speed through the town since the regulation came into force, says our local correspondent. So far no one has been stopped, but the police are active.

Twins and Two Speeds an Advantage.

Why the regulation should apply to the steep Swan Hill, on the Beckenham Road, is beyond comprehension. But a board is erected on the finishing bit of 1 in 9, also the Beckenham side. The hill, which has a swan neck bend, is narrow at the top, and many riders of single-geared machines will have to walk their machines if they don't take the initial part at good speed. Two speed and twin-cylinder machines will be at a big advantage. Mason's Hill. too, on the London Road, is tricky to tackle at slow speeds.

An Ambitious Tour.

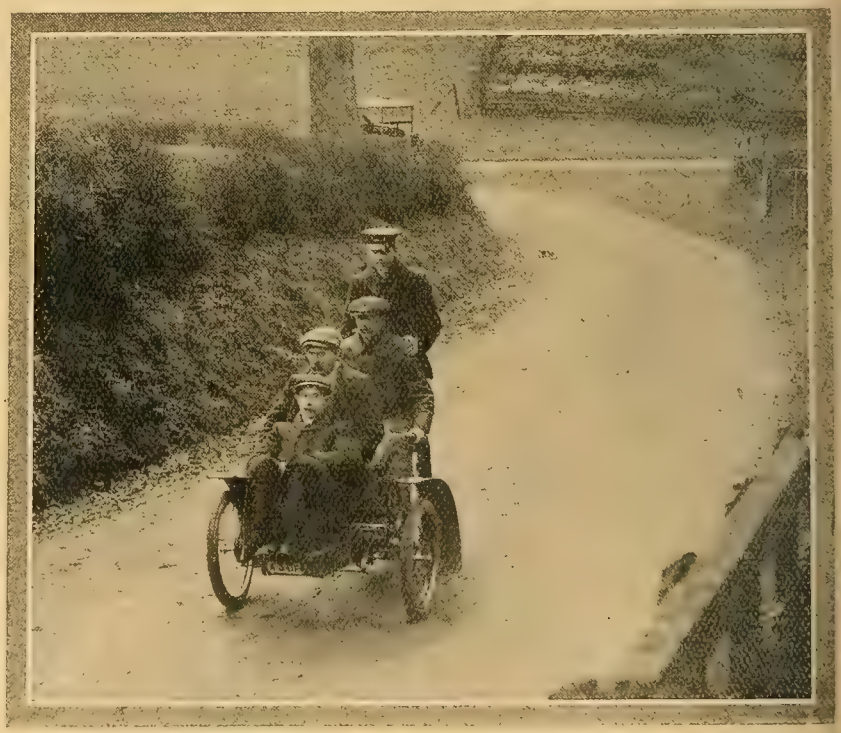
A few weeks ago a gentleman named E. M. Baxter, agricultural editor of *The Buenos Ayres Herald*, left England on a business tour which will embrace many Continental cities and extend, if all goes well, to the northern portion of Africa. Before Mr. Baxter left England we arranged for him to contribute an account of his doings, also photographs of interest to motor cyclists depicting motor cycling scenes in the countries through which he will pass. Through the courtesy of the Triumph Cycle Co., Ltd., we have seen a letter which Mr. Baxter has written from Cremona, Italy. From this letter we gather that the weather and road conditions have been rather unfavourable. The roads through France were bad enough, but in Italy they were worse. The total distance accomplished at present per motor cycle is about 1,690 miles, during which there has been no stop due to any fault of the machine. Owing to the fearful state of the roads he has been obliged to resort to the train on occasions. It is interesting to note that Mr. Baxter is not an experienced motor cyclist, or to be more correct, he was not when he first essayed the Triumph machine at Coventry. He had ridden a pedal bicycle, but had never previously bestridden a mechanically-propelled machine.

An American Tricar in the End-to-end.

Mr. T. K. Hastings, who it will be remembered was a successful competitor in the Six Days' Trials last year, will possibly bring his light Indian tricar to England for the 1908 competition. This tricar has a 5 h.p. twin-cylinder engine, and weighs 250 lbs. only. Mr. Hastings says he should like to see how it will run "on really good roads."

Unrolled Stones Bad for Tyres.

At this time of the year small patches of unrolled stones are encountered on the roadway. For the benefit of novices who have consideration for their tyres we may say that the best way to pass over them is to run almost up to the patch with the engine firing and then raise the valve lifter, so that the machine rolls over the stones. When stretches of road are under repair, and the steam roller is at work, it is advisable to dismount and wheel the machine on the pathway. Of course, it is better to avoid stones altogether if possible.



A twin-cylinder Brown tricar, driven by R. M. Brice, climbing Red Lion or Water End Hill, Hemel Hempstead, with four persons up.

ring Issue on May 6th.

The first issue of *The Motor Cycle* published in May will be a special spring number.

The Motor Union and Motor Cyclists.

A sub-committee of motor cyclists has been appointed to consider the relationship between motor cyclists and the Motor Union.

Motor Cycle Race at Brooklands.

The news that the Brooklands A.R.C. will include the first motor cycle race in the Easter programme has been received with great satisfaction on all sides. We have heard of two or three enthusiasts who intend entering immediately the conditions are made known. Let us hope the two 16-20 h.p. racers exhibited at the Stanley Show will be allowed to try their paces.

Fun on the Wheel.

Under the heading of "Hum of the Wheel" in *The Notts Evening Post*, the following humorous paragraph appears under the name of C. W. Brown: "I must say that I fully appreciate Mr. Hooydonk's position with regard to the adoption of two-speed gears on motor cycles, but I am afraid that it is the voice of one crying in the wilderness. The truth is that speed, and speed only, is the cry of the motor cycle press. I admit the intoxicating effect of speed; I have suffered from it, because on a high-powered car speed is fascinating. But on a motor bicycle on ordinary roads it is not, for the simple reason that it is next to impossible to sit the machine with any degree of comfort."

The Open Hill-climb on April 4th.

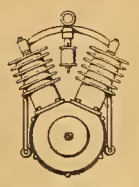
Entrants only for the Lewisham A.C. hill-climb on the 4th prox. are being advised at present of the venue of the hill, as a large crowd of spectators is not desired. We shall publish the name of the hill in our next issue. Entries for the contest finally close on Saturday next, the 28th inst., to the hon. sec., H. B. Renner, 31, Kidbrook Park Road, Blackheath, S.E. It is to be hoped that more entries will be received for the sidecar and lightweight class. The weight limit in the last mentioned class is 95 lbs.

Cycle Race Meeting Abandoned.

The race meeting promoted by a contemporary at the Stadium, Shepherd's Bush, for Saturday, May 9th, has been abandoned.

A Miniature Model of an Engine.

Mr. H. Rem Fowler, of T.T. fame, has sent us for inspection a most ingeniously constructed model of a twin-cylinder Peugeot engine. The tiny model measures $\frac{7}{8}$in. by $\frac{3}{4}$in. over all, the illustration showing its exact size. It is a working model as far as the engine pulley, cams, and valves are concerned, and the whole was turned on a clumsy brassfounder's lathe with 6in. centres, the parts being so small that at times Mr. Fowler says he could hardly hold them for working, and several of them got lost. The exhaust valve springs are made of hard drawn German silver wire. The carburetter is an exact imitation of a Brown and Barlow, and there is a chain sprocket on the half-time shaft for driving the magneto.



There are no flywheels or pistons, but Mr. F. tells us that he has been asked several times by motor cyclists who have examined it if there are such parts inside the model, and judged from the outward appearance that it possibly would work if attached to a gas tap. The weight of the model is considerably less than half an ounce, and it is gilded all over and fitted with a ring for attaching to the watch chain. We must say that we return this piece of clever work with the greatest reluctance, especially as the maker informs us that he has no intention of making another.

FUTURE EVENTS.

Mar. 21-28—Cordingley's Motor Show, Agricultural Hall.
" 28—M.C.C. Opening Week-end Run to Brighton.
April 4—Lewisham A.C. Open Hill Climb for Motor Cycles
" 16-20—M.C.C. Easter Tour.
" 18 and 20—Brooklands Car and Motor Cycle Races.
" 19 (Easter Monday)—Lincolnshire M.C.C. Hill Climb.
" 25—A.C.U. Quarterly Trial.
May 2—M.C.C. Members' Hill-climb.
" 9—Brooklands Motor Races.
" 9—Essex M.C. Open Hill Climb.
" ——A.C.U. Annual Hill Climb.
June 5-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U. 24 Hours Ride.
" ——A.C.U. Land's End to John-o'-Groat's Six Days' Reliability Trial.
July 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.

The Laviosa Autocicletta.

Quite a novel type of motor bicycle was on show at the Turin Motor Exhibition last month, and we give an illustration of the 1907 model herewith.

The machine has four wheels, although two are miniature ones, and are only used when getting under way, and as a stand. Directly equilibrium is assured the two side wheels can be put out of action by depressing a pedal. The single cylinder engine transmits power through two friction clutches, each with its chain to the back wheel, the low gear sprocket being attached to the spokes on one side of the wheel, the high gear one on the other. The 1903 Autocicletta, which is an improvement on the machine illustrated, is the result of two years' private experimenting, and is sold at £38. Dual ignition can be had if desired, also belt drive and fan cooling. Other details which will be noticed are an open frame, roomy bucket seat, spring forks, and handle starting.

Preparing for the Opening Climb.

The Westerham Road and hill was in grand trim at the week-end, and a contributor noticed several motor cycles being tried on the hill in preparation for the opening climb. At River Hill, too, several riders were noticed making trial runs, it being hinted that the venue of the L.A.C. climb a week next Saturday is in the near vicinity.

Accidents in Paris.

The number of persons killed in the Paris streets during 1907 due to traffic accidents is stated by *La Nature* to be: Trams 85, automobiles and motor cycles (not divided) 46, horse-drawn vehicles 88, motor omnibuses 9, pedal bicycles 5. It is not stated whether all these unfortunate people were run over or whether any of the accidents were due to collisions with other vehicles. It would be instructive to know the proportion of motor cycle accidents.

The First Long Distance Trial in 1908.

The first long-distance trial this year is the one promoted by the North-west London M.C.C. to Coventry and back, on May 23rd next. The course totals 216 miles, to be covered in twelve hours, and silver cups will be awarded to the successful competitors.

The Motor Cyclists' Ideal.

We are exceedingly glad to note the hearty response to the circular issued last week. Every post brought us shoals of replies, and our plebiscite is sure to prove most interesting when published.

American Records.

Our American correspondent advises us that the record made by W. H. Wray, jun. (44$\frac{2}{5}$s.), for the flying mile at Ormond Beach, Florida, January 25th, 1907, is recognised by the Federation of American Motor Cyclists. The record made by G. H. Curtis (46$\frac{2}{5}$s.) for the same distance was made in competition. In an early issue we hope to publish a complete list of American records as recognised by the Federation of American Motor Cyclists.

International Auto Cycle Tourist Trophy Race.

In our last issue we published a paragraph stating that Mr. M. J. Schulte had offered to present one gold medal each to the second and third in the single-cylinder class in the above race. The information was culled from the *R.A.C. Journal*, and proves to be only partly correct. The donor of the medals informs us that they are presented to the A.C.U. for *private owners only* riding single-cylinder motor bicycles in the T.T. Race next September or October.

CLUB NEWS.

Motor cyclists at the opening run of the Coventry M.C. to Stratford-on-Avon on Saturday last. Some sixty members and friends attended.

The Worcestershire M.C.C.

The above club has decided to hold a reliability trial on Easter Monday. The start will be made from headquarters at about 9 a.m. for Kington (Herefordshire), lunch and control here, return over same course, distance 105 miles.

Sutton Coldfield A.C.

A general meeting of the above club was held at headquarters, Royal Hotel, on Friday evening last, to consider rules and appoint officers. Mr. John C. Shannon was elected president; Mr. F. H. Finney, vice-president; Mr. Seymour Smith, captain; Mr. G. E. Jones, vice-captain; and Mr. Howard R. Lane, of The Beeches, Anchorage Road, Sutton Coldfield, hon. secretary. The opening run has been fixed for the afternoon of April 25th, and will constitute a reliability trial.

The Motor Cycling Club.

Members are again reminded of the opening run to Brighton on Saturday and Sunday next. Start from Purley Corner at 3 p.m. on Saturday; tea at the Red Lion, Crawley. The headquarters at Brighton are at the Old Ship. After dinner there will be an impromptu concert, so members are requested to bring their music with them. Arrangements will be made for lunch on the return journey at Burford Bridge Hotel. The best route to Purley Corner from the north-west of London is *viâ* Wimbledon Common, Mitcham Common, and Beddington Lane.

The centre for the Easter tour has been fixed at the Red Lion, Salisbury.

Newcastle and District M.C.C.

The annual general meeting was held at the Barras Bridge Hotel on Wednesday last, a numerous gathering being present. Mr. G. Hawkins was elected to the chair. The hon. sec., Mr. S. W. Carty, presented his report of the year's working of the club, which gave a list of the competitions already held, and foreshadowed the events for 1908. The membership is now close on 100, being over thirty more than twelve months ago. The resignation of the hon. treasurer, Mr. E. L. Bates was received, he being unable to continue in office owing to pressure of business. The following are officers for the current year: Hon. sec., Mr. S. W. Carty; hon. treasurer, Mr. Louis Rosenvinge; hon. solicitor, Mr. E. L. Bates; committee, Messrs. Hawkins, Crosier, F. Mallett, Nicholson, H. Bell, Austin, J. P. Forster, Atkinson, Outwin, and Rev. W. R. Yates.

The Hon. Treasurer presented his report and balance-sheet, which showed a balance of over £10 in hand.

It was agreed to form a new class of membership, to be called associates, annual subscription 5s., and they to be affiliated to the Auto Cycle Union with all its rights and privileges. The opening run has been arranged for Richmond on Good Friday, to meet the Leeds, Sheffield, and Bradford Motor Cycle Clubs.

Purley and District M.C.C.

This newly formed club has now started its weekly runs, and riders in the district are invited to join. On the first run to Crawley, some fifteen members attended. The subscription to the club has been increased to seven shillings and sixpence, including affiliation fees to the Auto Cycle Union. The hon. sec. is Mr. W. Borer, Wellmead, Purley.

Essex M.C.

The opening run takes place on Sunday, April 5th, to Witham, and it is hoped that a large number of members will turn out. A start will be made from the Castle Hotel, Woodford Green, at 10.30, and lunch will be arranged for at the White Hart, Witham, at 1.30. Will those intending to be present please notify the secretary in order to facilitate arrangements? This run will provide an excellent opportunity for introducing new members.

Coventry M.C.

There was a good attendance at the A.G.M. of this club on Wednesday evening last, presided over by Mr. V. A. Holroyd. After the report and balance-sheet had been adopted (the latter showing an income of £374 11s. 8d. and an expenditure of £267 17s. 7d.), the question of affiliation was put to the meeting. On the proposition of Mr. Victor Riley, seconded by Mr. W. F. Grew, it was unanimously decided to affiliate to the R.A.C. and A.C.U. Owing to the increase in the membership of the club, which now numbers 104, several additional members were elected on the committee. During the year it was decided to promote several club competitions, and in May next a long-distance run to Holyhead and back will be held.

It was announced at the meeting that the United Motor Industries, Ltd., would again present a cup for competition.

Cambridge University M.C.C.

The above club held a hill-climbing competition on Saturday, March 14th, at a hill about fourteen miles from Cambridge, near the village of Croydon. The hill has an average gradient of one in six. There was a very good attendance. W. H. Lees, of Trinity Hall, on his own design 7-9 h.p. Peugeot made both his ascents in 20s., equal to forty-five miles per hour, and thus doing the fastest time of the day. P. Q. Heyn on a 5 h.p. twin G.B. did second best time. The results, however, were worked out by the formula, $\frac{W}{C \times T}$. In the single class, the following is the order of merit: 1, W. G. Ross (Trinity College), on a 3½ h.p. 1908 Triumph; 2, C. H. C. Smith (Trinity College), on a 2¾ h.p. Clyde; 3, W. E. de Souza (Clare College), on a 3½ h.p. Minerva. In the twin class: 1, E. D. Dickson (Emmanuel College), on a 1908 twin Vindec; 2, J. M. Oakey, on a 1907 twin Vindec; 3, P. Q. Heyn.

The President (Mr. J. P. Stokes) says: "We are glad to see the town have followed our example and formed a motor cycle club, and we wish them every success."

THE A.C.U. COUNCIL MEETING.

A LONG BUT SUCCESSFUL MEETING—SCOTLAND AND IRELAND TO BE INVITED TO JOIN THE A.C.U.

THERE was a good attendance at the annual meeting of the Auto Cycle Union Council, held at the Imperial Restaurant, Regent Street, W., on Saturday last. Mr. Robert Todd was in the chair, and there were representatives from all districts.

Mr. Todd referred to the correspondence between the A.C.U. and the M.U. regarding the agreement, and stated he had seen Mr. Rees Jeffreys, and believed that in a short time the matter would be settled. He thought they might now cease reforming, and settle down to useful work. (Hear, hear.) As to taxation, they had approached the Chancellor of the Exchequer, and thought they had had a very good hearing, and although they had held their end up, it is evident that the Chancellor wants money, and does not look favourably on the idea of taking with one hand and paying back with the other.

Mr. Carty, Newcastle-on-Tyne M.C.C., raised the question of the penalty run, and said that they were very keen on it up North. It was explained that the event filled badly as regards the Midlands.

Mr. Mayo, Yarmouth, pointed out that the alterations of date had upset their arrangements. As it is very evident that such a contest is required, it was made an instruction to the committee that another contest be considered for this year.

In respect to the private members, Mr. J. H. Hall, Sheffield and Hallamshire M.C.C., asked whether the private members were not too well catered for. He thought they should go more for clubs, and not trouble so much about social events. He thought there was no reason for the paragraph in the report which stated that the agitation had had a detrimental effect on the private membership.

The Agreement with the R.A.C.

Mr. Carty thought the committee should not have made new arrangements with the R.A.C. without calling a Council meeting. They had signed the agreement, but he did not agree with it.

Mr. Todd: You are here under that agreement, and if you repudiate it you have no right to be here. The committee had (continued the Chairman) had the expressions of the meetings at Lincoln, Nottingham, and London, and thought that they were fairly well aware of the wishes of the Union, and had acted on those opinions. They had made a very excellent bargain, and the A.C.U. was now in a very strong position. They and the M.U. would shortly have any differences there might be amicably settled. He referred to a recent circular signed by some gentlemen present, and thought it had been raised in the interests of a certain body.

Mr. Wilkinson said that, as secretary of the club which called the Lincoln Conference, and as a member of what had been termed the Reform Committee, he had been in close touch with what had been done, and he was convinced from what he had seen of the arrangements made that the A.C.U. had done very well indeed. He had the honour of seconding the resolution which gave them the new arrangements, and he could answer for it that the A.C.U. had taken into account the basis of the conferences held, that the motor cyclists desired to manage their own affairs, and to have complete self-government. That was the bedrock of it all, and that they had got. Except for the government of the sport of motoring, which remained with the R.A.C., as the Jockey Club of motoring, there was no veto or over-lordship, but they did whatever they cared to do, and were not interfered with.

Mr. G. F. Sharp ably sketched out the negotiations that had been carried on, and showed that the R.A.C. had been most sympathetic and helpful.

The report recorded the thanks of the Union to the R.A.C. for the great assistance received from the parent body, and to Mr. Orde, the secretary of the R.A.C., for his help and advice on many occasions. The many honorary officials who have assisted in the past were also thanked.

The Balance Sheet.

Mr. C. A. Smith, the treasurer of the A.C.U., presented the balance sheet, which showed a slight deficit, viz., £13. The Treasurer stated he had at the present moment £500 in hand.

Mr. H. G. Cove seconded.

Mr. Hall wanted fuller figures.

Mr. Carty wanted the figures for the private members and for the clubs to be kept separate.

Mr. Cove supported this, as then it would be seen what the private members really did for the Union.

Mr. Carty asked as to the medals sent out to provincial clubs.

Mr. Smith suitably replied to the various queries raised, and the accounts were passed. It was agreed to endeavour to separate the figures for the private members.

The Chairman then read the new agreement made with the R.A.C., and explained the advantages obtained. He showed that the A.C.U. was £20 to the good over the new arrangement, and was in a very strong position.

Mr. H. Mayo could not see why they should leave one car body and join another. The other agreement had been torn up. What was to prevent this also being torn up? There was, he submitted, plenty of time to call the Council together. They had nothing against the committee, which had done the best possible, but they were jealous of their honour, and some of them had refused to sever their agreement in a summary fashion.

Mr. S. H. Fry asked was the agreement in force?

Mr. Todd: Yes. It was required to be dealt with early, and that was why the committee had acted.

Mr. G. H. Sharp showed how the matter stood. He said they had to jump and sever their connection with the Motor Union, which had been unsatisfactory from the start. They had had a hard fight to get anything from them, and if it had not been for such friends as Mr. Hele-Shaw and others they would have been in an even worse position. They had to pay, but got precious little for it, and the M.U. could not get away from the car idea. He had been on the M.U. committees and had seen it from the inside, and could say that the arrangements were most unsatisfactory. They of the A.C.U. had, he was certain, done the right thing.

Mr. Hall re-affirmed his opinion that a Council meeting should have been called.

Mr. Carty again expressed himself against the veto of the R.A.C., and spoke contemptuously of the amount of money they were obtaining from the R.A.C.

Mr. Wilkinson defended the committee, and said that they had simply carried out the decision of the Lincoln Conference.

Alterations to the Rules.

The necessary alterations to the rules were then proposed by Mr. Victor Hart. Rule 18 was altered to the effect that clubs joining the A.C.U., should first pay their fees.

Mr. Hall opposed this, and Mr. Carty seconded.

Mr. Smith explained that it was simply as all clubs did, they wanted a man's money before they made him a member.

Mr. Todd explained that the inclusion of the words was due to Mr. Hall himself, who in one of his many manifestos or circular letters had suggested that a club could affiliate and come and vote, then if it was not suited it need not pay.

Mr. Hall denied this interpretation, but Mr. Todd declared that was what the letter said.

Mr. Hall's proposal was defeated.

The only other alterations in the rules of moment was the increase of the committee.

Mr. C. D. Rose, M.P., was elected president; and the Hon. A. Stanley, M.P., the Marquis de Mouzilly de St. Mars, and Messrs. C. V. Boys, H. L. Callendar, E. Dangerfield, S. F. Edge, M. O'Gorman, Col. H. C. L. Holden, G. F. Sharp, Dr. Hele-Shaw, R. Todd, and A. J. Wilson, vice-presidents.

Mr. Todd was re-elected chairman, and Mr. C. A. Smith vice-chairman and treasurer.

Messrs. S. F. Beevor, E. M. P. Boileau, R. Todd, Mallam, H. B. Renner, J. Lyons Sampson, G. F. Sharp, C. A. Smith, A. Brown, and Bowley were elected to represent the R.A.C. members; and Messrs. J. G. Brooker, R. Chatterton, H. G. Cove, H. P. Harding, W. Pratt, A. G. Reynolds, A. Sharp, T. D. Blanch, R. J. Chapman, Getting, and Nelson to represent the private members.

For the affiliated clubs the following clubs were nominated for representation on the committee: Newcastle, Lewisham, Lincolnshire, Essex, N.W. London, Motor Cycling Club, Sheffield and Hallamshire, Bradford, Richmond, Yarmouth, Manchester, Cambridge University, Western District (London), Cardiff, West Essex, Birmingham, Bristol, Coventry,

The A.C.U. Council Meeting.—

Worcester, Hull, Scarborough, Walthamstow, and Brighton. On coming to the vote the Sheffield, Western District, and Brighton Clubs were defeated.

Mr. A. C. Pemberton, in a good speech, proposed to urge the Stanley Show authorities to consider the importance of the motor cycle movement, to give motor cycles increased publicity in their advertisements, and to devote more attention to them in their show. This was adopted.

Mr. Hall's sixteen proposals were then dealt with.

The proposal to secede from the R.A.C. was overthrown.

Mr. Sharp, Mr. Todd, Mr. V. Hart, Mr. Wilkinson, and others declared for the retention of the arrangement with the R.A.C., and emphasised that it was wholly beneficial, and that the A.C.U. had complete self-government.

Mr. V. Hart stated that Mr. Hall was only representing himself, and was not speaking for motor cyclists as a whole.

This brought from Mr. Hall an angry repudiation, and a statement that he had had a lot of correspondence with clubs.

Mr. Hall's proposal to allow the members to the committee to elect a substitute was defeated, largely on the grounds that there must be some continuity. The three proposals as to the payment of the fees was withdrawn.

The proposal that the existing agreement between the A.C.U. and the Scottish Cyclists' Union be terminated so as to enable the motor cyclists in Scotland to join the A.C.U. found a seconder in Mr. Wilkinson, who stated that when the Lincoln Conference was being arranged he found that the Scottish motor cyclists were very anxious to come into the A.C.U., and Mr. Hall showed that the centre scheme would enable the necessary arrangements to be made.

Mr. Todd thought the scheme would not work, for when Scottish motor cyclists were strong enough they would desire to break away.

On being put to the vote it was, however, carried, as was a similar one in respect to Ireland, so that if the negotiations prove successful, the riders in Ireland and Scotland will join their English brethren.

The proposal to arrange an active campaign in respect to taxation was agreed to.

The proposal for a new class of members with limited advantages at a small subscription was defeated.

Mr. S. H. Fry supported it, believing that it could be a sort of R.A.C. associate scheme, and prove successful.

Though the proposal was strongly pressed, it failed to win sufficient votes.

Mr. Carty's proposals were then proceeded with.

His proposal to start the centre scheme was seconded by Mr. Wilkinson, who had a similar proposal on the agenda Both urged that the scheme should be given a trial and on the suggestion of the seconder it was decided that the scheme should be started, and extended when found practicable. It was urged that the clubs would assist in forming new centres, and thereby the unwieldiness of the present Council would be lessened.

Mr. Carty was also successful in his proposal for inter club competitions within a twenty-five miles radius being run without a permit; but his proposal that the riders need not take out a license was defeated.

Mr. Carty's proposal to defray the fares of the councillor and committeemen residing more than thirty miles from the place of meeting met with much opposition.

Mr. Wilkinson was seconder, and withdrew a similar proposal in his name. It was stated that it would cost a enormous amount, but when it was made clear that the councillors under the present scheme were not included, and the seconder had stated that on the N.C.U. the fares of the committee averaged under £50 a year, it was decided to refer the question to the committee, with a recommendation to confine the distance to fifty miles.

Mr. Wilkinson having thrown in some of his proposals with those of Mr. Carty, his remaining one, seconded by Mr Renner, that the Council meet four times each year, alternately in London and the provinces, was carried.

A very hearty vote of thanks to Mr. Todd for his service at this lengthy meeting was then passed.

The Agricultural Hall Show.

OWING to special arrangements with other show promoters, only a very limited number of motor cycles may be shown at Cordingley's Motor Exhibition; therefore the number of items of interest to motor cyclists is exceedingly small. Only four complete machines are to be found in the building, and comparatively few firms are showing fittings and accessories which could be utilised by our readers. Still, to the enthusiast a visit is always worth while, and in these days of quick transit by "Tube" an hour spent in the hall will not altogether be wasted. Moreover, after the show has been opened for a few days, further exhibits may arrive, and thus render it more attractive.

In the main hall the F.N. Motor Agency, 106, Great Portland Street, S.W., stages two latest pattern F.N.'s, the 1¾ h.p. lightweight and the 4½ h.p. four-cylinder, two machines the excellence and good running of which are well known.

Douglas Cox, West Norwood, S.E., shows a twin-cylinder Adler, which follows the lines usually pursued by German manufacturers. It possesses a two-speed gear on the engine-shaft, which in outward appearance resembles the N.S.U., and has the spark advance controlled by a twisting handle and Bowden wire. The adjustment of the air and the arrangement of the control are also well worth inspection. The ignition is by high-tension magneto driven by a chain protected by a cover. Douglas Cox has also a latest pattern Douglas motor bicycle, one of the few twins with horizontal opposed cylinders, provided with vertical valves, and built by Douglas Bros., Bristol. It is a remarkably nice piece of work, having direct transmission, by means of a rubber belt, without any jockey pulley, and a Bosch lightweight magneto.

H. J. Harding, 211, Northumberland Park, N., is showing accessories in the Gallery, and is to have later two of the new lightweight Werner motor bicycles, but at the time this report was made they had not materialised. The chief item in the remainder of Mr. Harding's exhibit is the push-on or Eclair tyre connection—a thoroughly sound idea.

On one stand in the navigable balloon section, J.A.P. motor cycle engines are shown from 16 h.p. downwards. These engines appear to be attaining the same vogue in the aeronautical as in the motor cycling world.

W. and R. Jacobs, 39c, King William Street, E.C., who excellent electric motor cycle lamps have been recent described in *The Motor Cycle*, exhibit a capital selection electrical accessories, the most lately introduced of whi consists of an eight-volt accumulator for lighting mot cycle lamps of small dimensions.

Prested and Co., Elthorne Road, Holloway, show the wel known and well-tried Prested accumulators, coils, etc.

Carburation, Ltd., Byron House, Fleet Street, show G.J carburetters and the Gillet-Lehmann petrol economiser. Sin the carburetter was described in this journal on Septemb 18th, 1907, no structural alterations have been made, but w learn that to ensure the most absolute accuracy the device now manufactured by a firm of scientific instrument makers

The Ara Materials Patents and Manufacturing Corporatio 83, Chancery Lane, W.C., show the Ara vulcaniser, whi works on the cold process system. With it a repair is e tremely simple to carry out. When done, it is claimed t be absolutely permanent, and it takes less than ten minut to effect, and it is moreover suitable for repairing cuts gashes in a cover as well as for mending a damaged tub The device can be made to fit into a small area, so that the makers do as they suggest, and fit up a special outfit f motor cyclists, it should be a great boon.

Hurst and Middleton, Windsor Road, Lower Holloway, N (a firm which makes a speciality of all kinds of repairs), hav lately been joined by Mr. Sharpe, the inventor of the Univers silencer, which is shown here. This silencer, it will be remem bered, gained highest honours in the A.C.U. silencer tria held last year. Sharpe's piston ring remover is also show

Chas. Baker, 271, High Holborn, and Samuel and Co Ludgate Hill, show some excellent examples of motor cyc clothing.

On the stand of the Maison Talbot, Long Acre, W.C., whic together with the other accessory stands is in the Gallery, the Hay's electric vulcaniser. This device, which is very simpl worked off an ordinary ignition accumulator, is manufacture by the County Chemical Co., Birmingham.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 205.*)

DRIVING A MOTOR BICYCLE (continued).

CONTROL OF THE ENGINE.

For any given speed of the road wheels there is one right position of the spark lever when battery ignition is used and several wrong ones. These correct positions are soon learnt by practice, and are the secret of good hill-climbing. When they are known and used the engine runs more smoothly, quietly, and economically than with any other setting of the spark for the same road speed. (With magneto ignition the lever is generally placed nearly fully advanced and only slightly retarded on very steep hills.) Most of the following remarks apply to magneto or battery ignition, but it must be borne in mind that with magneto ignition the spark lever cannot be retarded in the same way that it can with battery ignition.

Example: 20 m.p.h. desired speed, engine 3½ h.p., gear 4½ to 1, road flat. Desired speed may be attained in two following ways:

(1.) Spark two-thirds retarded, throttle wide open, half extra air. Dull heavy explosions, pounding sensation, uses lot of gas, heats engine.

(2.) Throttle almost shut, spark nearly fully advanced, air nearly fully open. Gives light, smooth, quiet, purring explosions, keeps engine cool, economises gas.

Or tabulate control levers thus:

Throttle—hot, noisy, and expensive.

Spark—cooler, quieter, and very cheap.

Air—coolest, quietest, and, thank goodness, costless.

For any given speed we want the spark as far forward as possible, provided there is no knocking. The throttle as nearly shut as possible, and the air set to suit the other two, but as wide open as it will go without lowering the speed below the desired point.

Therefore, first set spark lever with throttle well open; put it so that the machine travels a little over desired pace, then close the throttle till exact pace desired is attained; then open air until to open it further would slow the machine or cause misfiring.

Starting out to average 20 m.p.h. along a deserted road I should set spark two-thirds forward, open throttle wide, and shut off the air. Push machine along till fair pace is attained, drop valve, and if inclined to take risks mount instantly the engine fired. If not the moment engine fired, raise valve, mount instantly, and drop valve the moment the foot is safely on the pedal. Arrived in the saddle, instantly give a little more air to prevent engine stopping for want of it, and the speed would immediately rise to over twenty, the throttle being too far open. Closing this down the speed would fall to twenty; I should then carefully adjust the air to that point at which the engine gave most power, and perhaps open it just one notch farther than this, for the sake of coolness and economy.

On arriving at a down grade that is sufficiently steep, lift the exhaust valve switch off ignition and freel down; if a very long freel is in prospect, half open throttle and open air fully to scour and cool engine If no switch fitted, have throttle eighth open and air fully open; this should weaken mixture sufficiently to make it non-explosive in silencer while valve is lifted. It is inadvisable to close throttle entirely.

If the grade is too easy to coast at reasonable speed, fully advance ignition, and close throttle nearly down, giving air to suit.

If grade be dangerous, approach summit slowly, lift valve and coast, arresting with brakes as appears wise. If very steep, close the throttle at the top, or switch off, so that engine compression may be used as an extra brake by dropping the valve at intervals.

HILL-CLIMBING ON MOTOR BICYCLES.

The point in driving which takes longest to learn, and is most pleasurable in learning, is the setting of the spark in hill-climbing. This comes slowly in ordinary riding, and the best method is to spend an afternoon on a hill which is almost beyond the powers of the machine. I have more than once failed low down on a hill by sheer bad driving, and ten minutes later roared up to the top at a good speed. There is a great deal in knowing the machine. In my novitiate I owned a single-geared belt driven tricar which I could never drive solus up a certain hill. In two months I could drive it up every time with a heavy passenger. No one, unused to the machine, ever succeeded in getting it up the hill without a passenger.

The spark can never be safely advanced on steep up-gradients; therefore, start every steep hill at maximum road speed, or at a speed sufficient to carry you up. Remember that the full power of a 3½ h.p. engine is developed at 1,500 to 1,800 revolutions per minute. At 500 r.p.m. it may only give ½ h.p. When the power of the engine is insufficient to allow climbing of steep hills with the spark fully advanced all the way up, the art lies in the judicious retardation of the spark. Sudden and violent alterations of its setting are fatal and ensure failure. As the engine slows, retard the spark a notch or so at a time, and discover by experiment whether it is helpful to cut off some of the extra air simultaneously.

The points, therefore, are:

1. Start a steep hill at full speed, *i.e.*, full spark advance, throttle two-thirds open, air set to match.

2. Correct the first almost imperceptible slowing by opening the throttle to its full extent.

3. When the machine slows further, retard the spark a notch at a time.

4. If the machine is seriously slowed, some of the extra air must be cut off.

5. On a level or almost level patch half-way up, re-advance the ignition a notch at a time, and if necessary assist the pick-up by pedalling sharply.

DRIVING OVER STONES.

184. With a tricar, make a rush and declutch on reaching the stones. With a motor bicycle, dismount if stones are seen in time. Otherwise hold tight, and do not reduce the pace. It is far easier to drive over new metal at twenty miles per hour than at six.

THE EXPENSE OF MOTOR CYCLING.

185. If all types of motor cycles are included, this becomes a very complicated question indeed; but as the question chiefly concerns those whose puzzle is whether they can afford to motor cycle at all, the annual expense of the cheapest efficient motor bicycle shall alone be considered.

FIXED EXPENSES.

Storage will cost nothing, since a motor bicycle may be kept in the hall, if the petrol system is tight. Unavoidable expenses will therefore be, for the first year:

	£	s.	d.
Licenses—Inland Revenue 15s., registration 5s., driving 5s.	1	5	0
Petrol 100 miles to the gallon for 5,000 miles at 1s. 4d. per gallon ...	3	6	8
Oil for 5,000 miles at 5s. per gallon	1	0	0
Carbide	0	5	0
	£5	16	8

SPARES AND ACCESSORIES.

Spare rubber belt 12s., spare valve 6s., spare platinum-pointed screw and spring 5s., spare belt fastener 1s., hooter 6s., lamp 15s., sparking plug 4s. 6d.; total £2 9s. 6d.

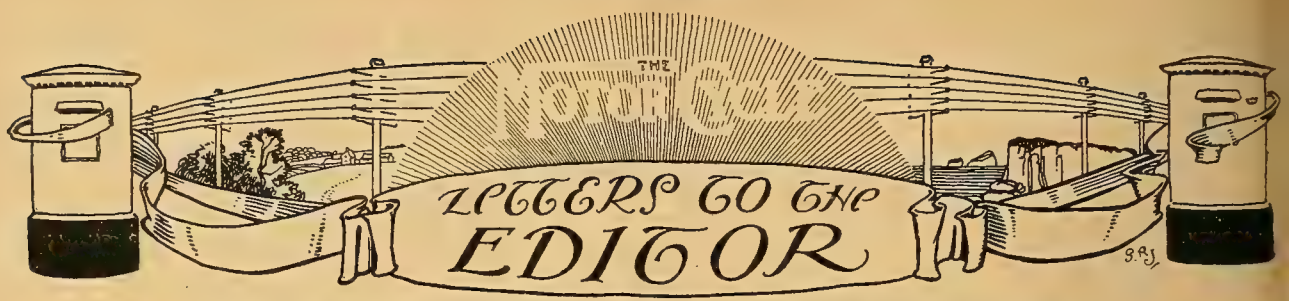
CLOTHING.

Many motor cyclists entirely dispense with special clothing, utilising an ordinary everyday waterproof reefer coat, Cardigan waistcoat, etc. So no charge under this head will be included.

REPAIRS AND REPLACEMENTS.

This is the head under which items vary so widely. If the rider is going to take every puncture, every adjustment, the grinding of his valves, etc., to a repairer, it is illimitable. But if he has a decent machine he may get through a season as the writer does, without necessarily entering a repair shop. The writer has had no training other than the school of solitary experience on the road, and as a consequence he spends nothing whatever on repairs. Replacements other than those indicated above should in the case of a new machine fall under the maker's guarantee. Tyres, which are not usually guaranteed, should last a year on a light single cylinder motor bicycle.

¶ *"THE AUTOCAR," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. Issued weekly.*



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Spring Forks and Side-slip.

[3191.]—I have read with interest the articles on side-slip, but have not seen anything dealing with skid of steering wheel. In this country our greatest hair raiser is sand, and it is always the front wheel.

On February 9th I had the mortification of seeing a rigid forked machine go through sand where I and others who have spring forks always dismount or come a cropper.

I wonder if any of your readers can recommend a remedy. Probably "Ixion" could give us some hints. The spring fork in question is the Truffault suspension.

For the benefit of your readers I might say I have ridden a Vindec two-speed gear for the last year, and found it completely reliable. T. W. IRLAM.

Transvaal.

Two-speed Gears and Hill-climbing.

[3192.]—In a recent issue Mr. E. D. Fawcett remarks that I might have put my two-speed Vindec to some severer tests during the tour I recently described in your columns. One reason why we did not tackle the Mont Caux climb was the fact that we did not wish to take more out of the rear tyre than was absolutely necessary. It will be admitted that the cover did well to last through the tour as it was, when the mileage and the double load are taken into consideration. Still, I have since regretted that the climb was not attempted, for I think we could have brought it off successfully with two up. Personally, I consider the two-speed gear indispensable. A month ago I took a sidecar with two ten-stone passengers and myself (the complete turnout weighing over 700 lbs.) for a fifty-mile spin over hilly (and muddy) roads. Of course the low gear had to be used very frequently, but the runs out and home were accomplished without a stop. I think this is quite as severe a test as driving solus up the stiffest of mountain passes, and if any motor cyclist who is still doubtful as to the advantages of a two-speed gear will attempt a similar performance with a single-geared machine, I fancy his conversion will be instant and complete.

H. HOWARTH.

Engine Design.

[3193.—I bought a copy of your excellent paper last week, and was very much interested in what your correspondent Mr. G. D. Monice said. While not agreeing with all he says about solid crankshafts and adjustable big ends, I do think that motor cycle engine bearings are hopelessly inadequate for the work they have to do, and so far from improving as time goes on, these bearings appear to be continually getting smaller. In other words, the life of the machine is being sacrificed in order to cut down the weight, and perhaps gain an extra half per cent. efficiency. I believe that this is a great mistake, and that it is the one thing above all others which prevents more people from buying motor cycles. How many business men, unless they are enthusiasts, will invest £50 in a motor cycle which will be worn out in two years? What is needed is a firm who will concentrate all their energy on building a motor cycle on engineering lines, which will run at least 15,000 miles without having to be sent to the makers for rebushing and the replacing of broken parts. It is of much more importance to the ordinary buyer to have a machine which is absolutely reliable for 15,000 miles than a machine which may save 6d. in petrol for the first 1,000 miles and be a constant source of worry and expense ever afterwards. WILLIAM T. WADE.

U.S.A.

Belt v. Chain.

[3194.]—I have read with interest the various discussions for and against the belt drive, and note that a correspondent last week considers chain drive essential for sidecar work. In the coming London to Edinburgh and return I intend entering a 6 h.p. Clifton Jap, belt drive, with Otto two-speed gear and rigid sidecar. I hope that our friend Montgomery will find time to compete as well, the two types being quite different; perhaps then we shall be able to prove by practical experience in long distance events the advantages and disadvantages of each.

P. W. VINSEN.

[We would suggest Land's End to John-o'-Groat's as a better trial, or a few hours' run, say Exeter to Dorchester, *viâ* Lyme Regis and Bridport.—ED.]

The Future of Motor Cycling.

[3195.]—I feel I must take exception to a remark o "Ixion's" in his reply to Mr. Hooydonk in your issue of th 11th inst., when he states that the 2¾ h.p. Excelsior was "th first motor bicycle of any real use produced in this country and streets ahead of any other machine."

In the latter part of 1902 I purchased a 3 h.p. Rex bicycle which during the following four years covered many thou sands of miles under ordinary touring conditions throughou most parts of the kingdom, and always proved itsel adequately powered so far as any single-geared machine o this h.p. could be. I am sure, too, from observation of Ex celsior machines I have come into contact with, that the Re was quite capable of holding its own.

As proof of the excellent materials and workmanship of m Rex engine, I may say that with the substitution of a wate cooled cylinder it has been for the past year in constant us on a heavy tricycle, which it is capable of propelling, unde favourable conditions, at nearly thirty miles an hour on th level. Except for the substitution of the water-cooled cylin der there have been no replacements in the engine in the wa of rebushings, etc., and the valve gear is practically as goo as new.

Now that two-speed gears are so much under discussion, may say that my Phœnix gear is in its fourth year of use and except for some inexpensive replacements, has require little attention. A most excellent feature about this gear i the clutch.

As regards the future of motor cycling, I think there is gap to be filled in the way of supplying a machine somethin on the lines on which my own has evolved, namely, three wheeler, well sprung, moderate power with water-cooling two speeds and belt drive with such as the Whittle belt which in my hands has proved absolutely satisfactory—an ample room for luggage, with efficient mudguarding.

In conclusion, I would add that anyone who substitute efficient water-cooling for air-cooling in the same engine soo can settle for himself the question as to whether an air-coole engine overheats. (Dr.) STEPHEN G. LONGWORTH.

[3196.]—With reference to your leaderette and the remark that I made in the discussion of Mr. Bell's paper on th future of motor cycling, I can only say that I have not th files of *The Motor Cycle* before me from which I can quo chapter and verse; but I have always been and am a clos reader of your valuable paper, and as such the opinion ha been forced upon me that you have without doubt, in m mind, preached the gospel of the heavyweight machines, an

his opinion has been confirmed to me in various directions y other readers. I do not deny that you have dealt with the natter of lightweight machines; but I do state, as my pinion, that after taking into account the matter of fair pro- ortion, the heavyweight has had all the limelight and the ightweight has been more or less left out in the cold. In aking my remark, I also had in mind the tricar, for it must e noted that the title of the paper was "The Future of lotor Cycling." I think you will agree that two of your eading correspondents are, or were up till recently, habitual iders of high-powered machines, and as such it is only atural that their writings should reflect their practice. With egard to the remarks by "Ixion," I do know that in May, 905, he described a 2 h.p. motor bicycle as only fit for the oo little novice, and even in your current issue his remark o the effect that if the trade ever turns out a lightweight hat is as fast and as comfortable as heavy twins, the latter ill die out but not before, can hardly be construed into an ncouragement of the lightweight type, because it seems to e that this question of a lightweight motor bicycle is only airly judged by what we have before us at the moment, and is, I think, handicapping the type out of the range of the resent-day possibilities to set it a standard, so far as pace is ncerned, equal to that of a powerful twin machine. De- elopments in detail of motor bicycles will move forward ogether. A better bearing or a more efficient pulley for a ghtweight will be adapted to a heavyweight, but there will lways be speed and difference in engine power. With regard o the point of comfort, I maintain that a lightweight achine is to-day more comfortable than a powerful twin. I so have a recollection of an illustration in a motor journal one of your regular contributors, wherein he was described one of the "heavy brigade," and if he has a book of cut- ngs I think he will be able to quickly light upon this illus- ation and also a statement from his own pen, wherein he finitely announces his championship of the powerful and erefore the heavyweight motor bicycle. I am sorry to have en the cause of this correspondence, but if, as a result, brings the lightweight motor bicycle into greater promin- ce, I shall feel that after all it has not been without good sult.

J. VAN HOOYDONK.

A Suggested Match on Brooklands Track.

[3197.]—In common, I suppose, with the majority of ur readers, I was greatly interested in the Triumph-Vindec atch recently contested at Brooklands, and very gratified at it called forth so much as it did of comment from the dly car papers.

Has it ever occurred to you that a very interesting match ght be organised for three motor cycles, single, twin, and ur-cylindered? I don't want to suggest anything very ex- nsive or elaborate. There is no call even for handicapping. Let us take three representative machines — strictly andard, of course—in genuine touring condition, let them rt level, and let us see which can keep Mr. Rodakowski's ing apparatus most busy for, say, an hour. The machines ould be normally geared, of course—I believe the F.N., ich is fairly representative of "fours," is ordinarily geared about 6 to 1—and in every respect just as they are sold to linary touring motor cyclists.

I don't think there is need for much ink to be spilt over e matter, as probably both the Vindec and Triumph people uld be glad to show what they could do against, say, the N. A match might easily be arranged, the loser to pay the ck fees, at little inconvenience and less expense. Should s come about, all motor cyclists would watch the outcome erestedly, and the winning machine would get an adver- ement of real value.

Trusting to hear the view of other readers on the matter,

E. N. DUFFIELD.

The Fascination of Motor Cycling.

[3198.]—I have a bone to pick with your wicked paper. me three years ago I was a happy and contented man, but ill-luck caused me to listen to the idiotic talk of a motor cling friend, and to read various numbers of his copy of e *Motor Cycle*. The result was a 2 h.p. —— (second-hand), ich gave me all sorts of trouble, and ought to have cured me e for all of this madness, but I still read this evil paper, d a 3½ h.p. —— was the result. Dirty hands, dried-up ution tubes, electric shocks, bad temper, came on as ore, but I still read on, and a —— sidecar added terribly my agonies. I became everybody's slave, and a "paying" chauffeur for every wretched visitor. Still, I read your collection of infamies, and invested in a two-speed gear. Then life became a burthen, and I was compelled, and, alas! am still compelled, to drive ladies about wherever they want to go, take them shopping, and escort male visitors to and from the station, sometimes with heavy bags, through all weathers. I take good care that nothing goes wrong, but now and again one must get a new belt, which stretches, as you know, and when going to or from the station I have to get off, and with muddy, frozen fingers shorten the belt and listen to the compassionate remarks of passengers about the bother of motors. Then, ah! then, it is difficult to refrain from saying and doing regrettable things.

Now you will say our victim is escaping; he will sell his accursed omnibus and be happy once more. Alas! no! He is waiting with impatience for the arrival of a 5 h.p. twin, which only the fortunate lack of funds will prevent being fitted with a magneto, two-speed gear, and handle-bar control.

Thank goodness, your power ends with motor cycles, and when some day—may it be distant yet—I am seated on a 9 h.p. twin, with sidecar, and furred and goggled passenger by my side, driving at awful speeds through mud and snow, with every appliance that diabolical ingenuity can suggest fitted, then you will be satisfied. And so shall I.

MOHUN A. TRENCHARD.

The End-to-end Run.

[3199.]—In reply to your footnote to my letter in *The Motor Cycle* of March 4th, I would like to say that most of the Burns relics are on view till ten o'clock, also that it could be arranged to have the Burns House and Mausoleum open for the convenience of any who might wish to visit them. Apart from these, the town is quaint and interesting, the hotel accommodation is ample, and there are good garage and repair shops. A band plays on the Dock Park in the evenings, and the park being alongside the river Nith, a quiet and pleasant time could be passed there by those who did not care to go sight seeing. In the meantime, I would be pleased to give the officials any further information they may desire. The club members here would be only too willing to assist in checking, and would do everything in their power to make their fellow motor cyclists comfortable when passing through Dumfries.

J. M. M. M'LEAN,
Hon. sec. Dumfries and District M.C.C.

Not a Luxury but a Necessity.

[3200.]—May I bring before the notice of my fellow motor cyclists a really good article, viz., the Mabon clutch? I had one fitted less than two months ago, and in that short time it has ceased to be a luxury and has become a necessity. I am delighted with it. My 6 h.p. bicycle, sidecar, myself, and a 10 st. passenger make a total weight of 5 cwts., and I use a gear of 4½ to 1, but the clutch will move this load from a standstill with perfect ease. The last week-end, on the London-Hastings road, I had to stop on several hills to help start a friend's bicycle which was in bad tune and would not climb, and in every instance restarted the above load from a standstill in the middle of the hill. One of these was Tubb's Hill, Sevenoaks. The clutch is metal to metal, and can be slipped to any extent without injury, thus making an admirable substitute for a two-speed gear. It is light, compact, and foolproof, and has been admired by all who have seen it in operation on my machine.

I may say I have no interest in the Mabon beyond that of a satisfied user. It has always been my practice to recommend a good thing when I have found it, and thus I hope you will see your way to publish this letter.

A. W. BROWNE.

Outside Flywheels.

[3201.]—I notice in last week's issue a letter signed M. Marshall, and it may interest others to hear my experience of outside flywheels from a rider's point of view. I may say that I am a commercial traveller, and use my mount for my business. I have had a good many machines through my hands (both inside and outside flywheels), my present mount being a 2½-3 h.p. Fairy. I have had this machine about eight months, and have covered some thousands of miles without experiencing the slightest trouble from the makers' method of fixing the flywheel. The only trouble I have experienced

is that it is difficult to adjust the timing or get at 2 to 1 gear without taking down the engine. In my new mount, of same make, at present on order, this trouble has been neatly overcome, as all gear is in a pocket outside crankcase, and another good point, both cylinders are fitted with forced lubrication. Trusting that my experience may be of interest to others and lead to further discussion on this interesting subject, a few letters as to cost of running lightweight machine would be of interest, C. S. NEWSON.

Two-speed Gears and Free Engine Clutches.

[3202.]—We note in your last issue the query put forward by your correspondent "Wim" with reference to the point as to driving on the exhaust with a machine fitted with our two-speed gear to such an extent that the engine ceases to drive the machine, and consequently the machine drives the engine. In reply, we beg to state that no damage can result to our gear when being driven in this way, provided that the driving is not carried to such an extreme that there is backlash between the dogs and the trips of our gear. The whole matter is one of judgment and fair handling. PHŒNIX MOTORS, LTD.

[3203.]—I should be pleased if you could find room in your esteemed paper for this answer to the severe critic of Mr. Wall (March 4th).

I beg to say that my statements as regards (1) easy manipulation of motor cycles in traffic with the air-cooled engines of the present time can still be upheld, as those engines of 4 h.p. or thereabouts are very liable to damage by running free for any space of time, unless they are governed automatically, and provided with an effective fan. I cannot see how Mr. Wall will manage in really heavy traffic, or, say, fog, simply by declutching.

(2) As regards handle starting, I am glad Mr. Wall admits the great difficulty in the direct handle start. The Roc is a departure from the majority in this respect, and geared up—virtually—this must of necessity be exempt from my first statement.

Special designers have special merits. May I take this opportunity to ask Mr. Wall how this clutch is to work with engines of, say, 1½-2½ h.p. only, which power, I think, is mostly in use on motor cycles. F.M.

[3204.]—Opinions from your readers who are using two-speed gears which Mr. Douglas Fawcett wishes to see expressed in your columns should be exceedingly interesting. The usual reliability and hill-climbing tests with which we are familiar do not, as a rule, present any special test of the efficiency of a two-speed gear. Until club contests include in their programme mean fast and slow hill tests, the public will have no favourable opportunity of judging the ordeal a two-speed gear is competent to face with impunity. In the absence of such special trials we quite understand a certain incredulity as to the remarkable capacity of a properly-designed motor cycle two-speed gear.

Mr. Fawcett says the Roc gear looks very well on paper, but if this gear proves as great a success as the clutch it will "mark a great advance." It can, of course, only be left to actual users to relate their experiences to show that the makers' claims of this gear are amply fulfilled.

The only trial in which the Roc gear has had an opportunity of being put to a public test was in September last at Sharpenhoe, when Roc single and twin two-speed machines were entered, and each carried off the gold medals for far the best performances.

As the sponsors for the clutch and gear system under notice, we cordially welcome any similar event, and might suggest, *e.g.*, the descent of the stiffest portion of any notorious hill, such as Porlock, River, Edgehill, or Birdlip, down to a half-way point, turning completely with the engine continuously running, and re-ascending from a standstill. The test might be made more searching still if the bicycle were coupled up to some passenger attachment.

Makers should welcome such a test to remove once for all any possible scepticism as to the capacity of a two-speed gear under the severest conditions that could be imposed.

We can quite understand Mr. Fawcett's conviction that for mountaineering tours a two-speed gear machine is indispensable. He sums up the situation very picturesquely by mentioning "that too much trick-riding is required if the machine is single geared." ARTHUR W. WALL.

[3205.]—Until quite recently I belonged to that numerou class of motor cyclists who, without wishing to go to the ex pense of having a two-speed gear fitted to their machines still desire to share the delights of our pastime with other by attaching a sidecar. I have always understood that to d this with only a 3½ h.p. single-geared machine at disposa was to court certain disappointment, unless, of course, on lives in a practically level district, and, after making a care ful study of the information, correspondence, etc., whic have appeared in *The Motor Cycle* relative to this subject, decided to investigate the claims put forward by advocate of the free engine clutch. In the result I had a Mabo clutch fitted, and, as it appears certain that a great man motor cyclists must be wavering on the sidecar question, trust you will be kind enough to allow me briefly to state m experiences.

With the sidecar attached and a nine-stone passenger seate in it, to which must be added my own weight of over te stones on the saddle, the machine, a 3½ h.p. Rex, has easil climbed all the hills between London and Dunstable, an those who know the road will agree that both Barnet an Ridge Hills—especially the northern side of the latter—ar fair tests for the combination. I got pulled up by traffic i the worst part of Barnet Hill on one occasion, but starte again by freeing the engine and letting in the clutch whe ready, getting going with both rider and passenger seated.

I also started from standstill in the centre of St. Alban with the full load, immediately afterwards making a sho right-angled turn and mounting the very sharp rise leadi to the Harpenden and Hatfield roads. It would, of cours be practically impossible to do this without the clutch, as one presumably, can push a machine with sidecar a passenger uphill and make a start, the machine being singl geared and 3½ h.p. No one with such a motor bicycle sound condition and the cash to spare for covering the tot cost of having the clutch fitted need hesitate about taki a sidecar. Need I conclude with the usual disclaimer pecuniary interest? H 3594.

[Barnet Hill and Ridge Hill are both moderately steep, b they cannot be compared with the hilly main roads Sussex, Surrey, and Kent.—ED.]

The Development of the Motor Cycle.

[3206.]—I have watched the development of the mo cycle from the first; my stable has held many patterns, a I am satisfied that there is no question so urgent as that variable gears. Mr. G. Freestone's letter [3152] is most p tinent, and I am sure it would interest thousands to kn where the gear described can be seen. (Letters addres c/o the Editor will be forwarded.)

Memory suggests that I gained more pure pleasure out the low power than the high, although for purposes of sp alone the high powers call for greater exercise of nerve a general ability, but it is not the lust of sport alone t impels me now to write. It is sober business necessity, a the practical question is how to get a machine that will ca one at speeds ranging down to four miles an hour thro traffic and over hills. Apparently, Mr. Freestone's mach answers these requirements, and it is noteworthy that Mr. Van Hooydonk (page 185) looks forward to the same idea

The important points are light weight, variable gear, saddle position, absence of pedals, and magneto ignition. machine with these advantages and of reasonable price wo command an immense sale. There must be thousands of p fessional and business men like myself who find the labou pedalling is too great to admit of the use of a pedal mach constantly, and the manipulation of a powerful motor bic too exacting for town use. One must be fit and ready work when making one's calls, and to the class of men i cated the machine described would be a boon. The Rex have been enthusiastic in meeting public needs; can they be induced to put such a machine on the market?

A PROSPECTIVE BUYEI

[Several interesting letters are unavoidably held over.—

EXPERIENCES WANTED.

Ambulator, Southport, would like readers' experiences wh N.S.U. two-speed gear after long usage on 6 h.p. twin wh sidecar, also with the new Shamrock Excelsior studded ty

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THE · MOTOR · CYCLE · OF · MERIT.

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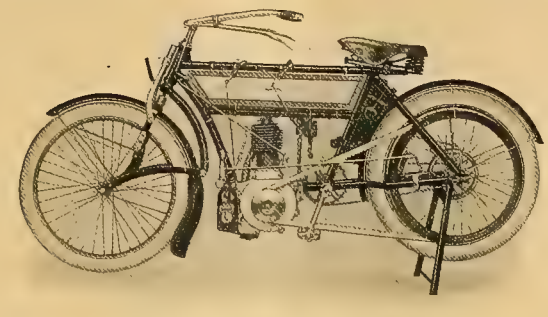

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What a SATISFIED RIDER of a 1908 3½ h.p. "VINDEC" says:

"The quiet easy running of your 3½ h.p. was quite a revelation to me, after last season's experience with a machine of the same power with short stroke and high compression. As for speed, it will hold its own with any single-cylinder I know of, and will keep on going up steep hills that my previous machine would stop on half way up."

There will be other "VINDEC" riders who will have the same opinion of this model before the season is over.

DELIVERY BEFORE EASTER IF ORDERED AT ONCE.

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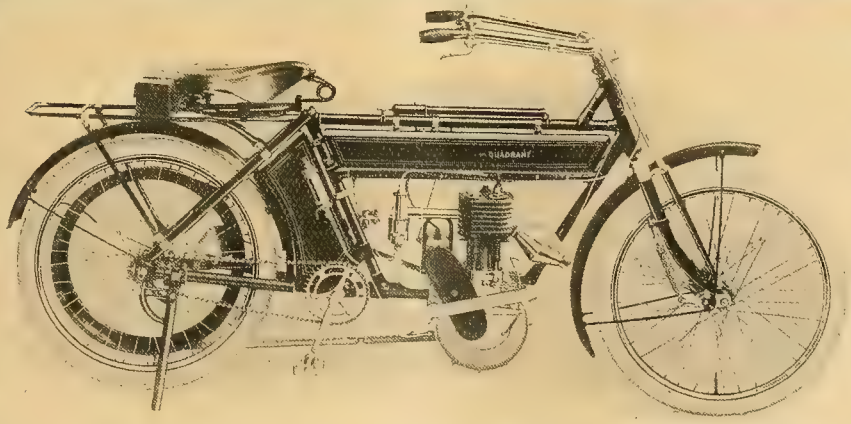

Low frame.

Long wheelbase.

Starts instantly.

Standard gear four to forty miles an hour.

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Special ONE LEVER control from handle-bar governs both gas and air supply.
Special full size aluminium footrests. Special tubular carrier.

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REPAIRS: Genuine Quadrant parts for all Quadrant engines.

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ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given, c/o *The Motor Cycle*, 20, Tudor St., E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

HALIFAX Motor Exchange. — As the largest dealers in Rex machines, we have a few 1907 shop-soiled machines at clearance prices. Great bargains. Exchanges in all 1908 Rex and N.S.U. models.

HALIFAX.—Shop-soiled 1907 black and gold Rex de Luxe, twin tyre, magneto, Roc clutch; 1908 price £55 13s., our price £35; you save £20 13s. Only a Rex agent can do it.

HALIFAX.—1908 2¾ h.p. Peugeot, light, low, Bat frame, brand new; £21; cannot repeat.

HALIFAX. — 1907 35 guinea twin Rex, spring forks, soiled; £23; you save £13 15s.; we gain your confidence.

HALIFAX.—1907 magneto twin Rex, unridden, November price, £42, our price £28 10s.; another £13 10s. saved.

HALIFAX. — 1908 Rex de Luxe, Roc clutch, two-speed gear, magneto; 55 guineas; liberal exchange.

HALIFAX. — 1908 Rex featherweight, magneto, magnificent hill-climber, recommended; 25 guineas.

HALIFAX.—1908 3½ h.p. N.S.U., magneto, just delivered; £40; allow £25 for last year's model.

HALIFAX.—1908 5½ h.p. twin N.S.U., magneto; £52; allow £25 for 1907 single magneto, in good condition.

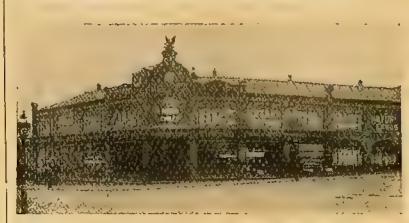
HALIFAX Motor Exchange. — Extended payments, exchanges; high-class machines purchased for spot cash. — 16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

GOOD FRIDAY COMING,

and no new Motor Byke!

BAD, business, isn't it!

But it isn't too late yet, because The PREMIER MOTOR AGENCY has taken care to provide a good stock of the best MOTOR CYCLES, and so you can get Delivery from the Premier at once.



TRIUMPHS are already hard to get, but the Premier Contract with the Triumph Company enables them to deliver, if not from stock, at least in a few days. Do not leave it too late, however.

The REX Magneto Lightweight at **£25** is also a hot favourite. It is a charming little machine, low, light, and handy. Probably no better value has ever been offered.

The F.N. is another lightweight which has captured the public fancy. The geared engine pulley is a great idea, and F.N. workmanship is of course beyond reproach.

The MOTOSACOCHE (while we are talking of lightweights) is in a class by itself very far ahead of imitations. The engine is a magnificent piece of work, and the price is low.

The BAT is at the other end of the scale—not light, but the most powerful motor cycle made. The Premier Two-speed Gear and Roc (licensed) Clutch are particularly suitable to this machine.

The VINDEC, The ROC, The MINERVA, The BROWN, The N.S.U. are all well-established favourites. You cannot get any of the above more **cheaply or promptly** than from the **Premier Agency,** and they will **TAKE YOUR OLD MACHINE IN EXCHANGE,** making a **MOST LIBERAL ALLOWANCE.**

No space available for our list of

SHOP-SOILED & SECOND-HAND MACHINES this week. We will send complete list on receipt of postcard. They range from **£5** and upwards—no crocks.

Our other Specialities—

PREMIER TWO-SPEED GEAR with ROC (Licensed) CLUTCH.
PREMIER TUBULAR STANDS and LUGGAGE CARRIERS.
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PREMIER ROAD CLEARERS.
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} See our Advts. in this Issue.

Write for BOOKLET "On the Choice of a Motor Cycle," also "Motor Cycles of 1908," and "Everything for the Motor Cyclist."

PREMIER MOTOR AGENCY,

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MOTOR BICYCLES FOR SALE.

HALIFAX.—Holds the finest and largest stock of second-hand cycles in the world. 300 to select from. All machines are despatched in running order, with charged and guaranteed accumulators.

HALIFAX.—Genuine twin Rex, £22, guaranteed, spring forks, low built, goes like a flash; £16 given for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex in part payment.

HALIFAX. — 3½ h.p. Minerva, spray, girder forks, 26 by 2¼ Clincher A Won, begging at £16 10s.

HALIFAX.—3½ h.p. Phelon and Moore, magneto, spring forks, low frame, two-speed gear, climbs anything; £34.

HALIFAX.—3½ h.p. 1907 Rex, magneto, Crypto two-speed gear and Montgomery flexible sidecar; complete, £28 15s.; without sidecar, £24.

HALIFAX. — 1906 3½ h.p. Rex, specially good condition, 26 by 2¼ Clinchers; £16 5s.

HALIFAX. — 5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £27 10s.; bargain.

HALIFAX.—3½ h.p. Simms, vertical engine, magneto ignition, easy starter, reliable; £17 10s.

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HALIFAX. — 6 h.p. twin Antoine, 1907 machine, spring forks, without fear or favour; £25.

HALIFAX.—Special 7 h.p. Peugeot, twin-cylinder, nearly new, a regular flier; £30.

HALIFAX.—2¾ h.p. Minerva, mechanical valves, 26 wheels, 2¼ tyres, perfect order and condition; £14 10s.

HALIFAX.—1907 twin Rex, shop-soiled, and unridden, 2¼ tyres, fully guaranteed; £23; don't delay.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 100 miles non-stop; £13 10s.

HALIFAX.—3 h.p. M.M.C., vertical engine, trembler coil, goes like a chronometer, fine Palmers; £13.

HALIFAX.—4 h.p. twin-cylinder Werner, 26 by 2¼ Michelins, very smart mount; £18.

HALIFAX.—3½ h.p. Rex, spring forks, vertical engine, spray, 26in. wheels, special finish; £12 10s.

HALIFAX.—2 h.p. Minerva, mechanical valves, spray carburetter, magnificent climber; only wants seeing; £8 10s.

HALIFAX. — 3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15 15s.

HALIFAX.—3 h.p. Givaudan, late model, spray, almost new, perfect every way; £15.

HALIFAX.—£2 deposit and six monthly payments of 27s. 6d. secures 2¾ h.p. Antoine, 2¾ h.p. Humber, 3 h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 2¾ h.p. Buchet, 3½ h.p. Rex; all guaranteed running order.

HALIFAX Motor Exchange.—Unrivalled offer. In going order. 20s. deposit and six monthly payments of 22s. 6d. secures 1¾ h.p. Quadrant, 1¾ h.p. Minerva, 2 h.p. Minerva (mechanical valves, spray), 2½ h.p. magneto Singer, and 2 h.p. magneto Simms.

HALIFAX Motor Exchange. — Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone 766. Telegrams, Perfection.

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BOOTH'S Motor Exchange, Wade Street, Halifax, offer the following bargains, cash, credit, or exchange,

ANTOINE, twin, 6 h.p., nearly new, £22 10s.; 2¾ h.p. Antoine, good order, £6 15s.—Booth.

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MAGNETO 3 h.p. Clyde, vertical engine, M.O.V., smart looking, good hill-climber; £11 10s.—Booth.

MAGNETO N.S.U., 3½ h.p., low built, long bars, fully guaranteed; £22 10s.—Booth's Exchange.

MINERVA, 3½ h.p. shop-soiled, spring forks, 2¼ tyres, as received from makers; £25 10s.—Booth.

ROVER, 3¼ h.p., vertical engine, M.O.V., free engine, 26in. wheels, smart; £12 12s.—Booth.

MINERVA, 3½ h.p., low built, up-to-date, £16 16s.; Minerva, 2½ h.p., £8 15s.—Booth.

SPARK, 2½ h.p., magneto, vertical engine, 26in. wheels, very light, reliable; £10 10s.—Booth.

SHOP-SOILED 3½ h.p. Rex, 1907 model, £19 19s.; shop-soiled Rex de Luxe, £35.—Booth.

STEVENS, 4 h.p., low built, torpedo tank, long bars, high-class; £14 14s.—Booth.

LIGHT and low, 3¼ h.p. Rex, spring forks, 26in. wheels; accept £5 15s. and smaller powered machine.—Booth.

KERRY Twin, long bars, smart looking, £22 10s.; Sarolea, 2½ h.p., spring forks, £10 10s.—Booth.

KERRY, 2½ h.p., low built, 26in. wheels, spray, very reliable, smart; £11 10s.—Booth.

1906 3½ h.p. Rex, spring forks; accept £6 10s. and your high-built machine.—Booth.

CALVERT, 2¾ h.p., low built, 26in. wheels, vertical engine, good order; £8 15s.—Booth.

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DE DION, 2½ h.p., less tank, Brown and Barlow, exceedingly low built; £6 15s.—Booth.

LIGHTWEIGHTS, Jap, 2½ h.p., £8 15s.; Quadrant, 1¾ h.p., £6 15s.; Minerva, 2 h.p., £6 15s.—Booth.

LIGHTWEIGHTS, Ormonde, 2¾ h.p., £6 15s.; 1½ h.p. Minerva, £5 15s.; 2½ h.p. Centaur, £7 10s.—Booth.

MORE Bargains like above; write for list.—Booth's Motor Exchange, Wade Street, Halifax.

MANCHESTER and District.—3½ h.p. 1907 magneto Triumph; this machine is in excellent condition, and has been well taken care of, the engine was recently overhauled by the makers and put in perfect running order, the tyres, enamel, and plating are all good, and the machine can be inspected and the price obtained on application to the Triumph Cycle Co.'s Depot, 160, Deansgate, Manchester.

BOOTH'S MOTOR EXCHANGE

Can give instant delivery of a

5½ H.P. REX DE LUXE SHOP SOILED.

FITMENTS.—Roc Clutch. Magneto. Black Finish. Twin Tyres. Spring Seat. Gold line. £35, or exchange. £17 10s. saved.

A Lovely TWIN REX, £22.

Plenty of power, plenty of comfort (spring forks), and we guarantee you a good machine. We will accept £6 and a decent 1906 3½ h.p. machine; liberal allowances for lesser powered machines. Write us, and you will be agreeably surprised.

A Smart 3½ h.p. LOW-BUILT REX, £16 16s.

Spring forks, will take any hill. We will relieve you of a small amount of cash and your present machine and supply you with above. Write us to-day.

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of motor cycles and accessories. We are certain to have something you require.

NEW 6 H.P. TWIN ANTOINE (1907).

Comprising frame fitted with long handle-bar, seat-pillar, chain wheel and cranks, wheels, belt rim fitted, ⅞in. rubber belt, two cable brakes, tank, wide mudguards, Fuller's twin coil, accumulator, engine, carburetter, beautifully enamelled and plated. Can be fitted together in a few hours, making an up-to-date low-built machine. Price, as above, **£19 19s.**, or exchange.

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10 h.p. TWIN REXETTE open sprung frame, two speeds, special finish	£45 10
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4 h.p. TRENT, open frame, wheel steering, two speeds	22 10
4 h.p. REX, special engine, coach-built, free engine, fan-cooled	16 16
6 h.p. REX Tricar, magneto, twin cylinders, four-speed pulley	32 10

See this column for Motor Cycles.

NON-TREMBLER. MIDGET TYPE.	SYNTONIC TREMBLER. 3,000 revolutions.
One cylinder 10/3	One cylinder 17/6
Twin cylinders .. 21/-	Twin cylinders .. 35/-

We make a liberal allowance for your troublesome coil in part payment. Buy a FULLER and your misfiring troubles are over.

New Accumulators for Old.

Large stock	Genuine Fuller's.
C2 type 17/-	Midget type .. 16/-
Rex type 16/-	Minerva type .. 17/-

Every cell guaranteed.

Patent non-corroding terminals. Made to withstand the vibration of a motor cycle. Large stock. Quick delivery. We allow 5/6 for your old accumulator in part payment.

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A few shop-soiled to clear at 9/6 each. Vibration entirely eliminated. Low riding position if desired.

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Enormous success. Made from selected parts of hides, and cut to a correct angle. The best belt at present on the market. Quality high, price low

We send on appro. on receipt of P.O.

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Special terms to the trade.

High-class motor cycles wanted for cash.

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Coronet Works, Wade Street,

HALIFAX.

Telephone 198Y

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VINDEC Special Motors from stock.—Woodman's, Peterborough.

£6 10s.—Rex, 3½ h.p., spray, good order, —Element, Eardisley, Hereford.

ANGLIAN Motor Cycles, with simplest and most practical two-speed gear.—Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

SIDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London Agents, H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W.

6 h.p. 1906 Pattern Phœnix Quad, in good running order; £40.—Write, C. Taylor, Wye, Kent.

£6.—1½ h.p. Minerva, in good condition. —Cathery, Glengall Chambers, Glengall Road, Kilburn.

1¾ h.p. Light 1907 F.N., magneto, not run 900 miles; £20.—Chapman's Garage, Childs Hill, N.W.

3½ h.p. Minerva Engine Motor Cycle, new Chater-Lea frame and fittings, new tyres; £28.—Below.

2¾ h.p. Minerva Engine Motor Cycle, Chater-Lea fittings, cut-out, footrests, etc.; bargain, £16.—Below.

2 h.p. Phœnix, in perfect order; £10, or nearest offer.—Below.

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LEEDS.—4 h.p. twin N.S.U., magneto, condition new; price £40.—Bridge Garage.

LEEDS.—Centaur motor cycle, with side-carriage, free engine, good condition; £29.—Bridge Garage.

LEEDS.—3 h.p. N.S.U., last year's cup winner, new condition, magneto; £29.—Bridge Garage.

LEEDS.—3 h.p. Humber motor cycle, running order; £6, bargain.—Bridge Garage.

LEEDS.—3¾ h.p. N.S.U., magneto, new condition; £43; exchanges arranged for any machine.—Bridge Garage, 169, Briggate, Leeds.

3 h.p. Motor (De Dion) and sidecar, two-speed gear, in new condition; photo; £32 10s.—T. Slaughter, Weston-super-Mare.

FOR Sale, 2½ h.p. lightweight, magneto, spring forks, Palmer tyres, low built; £14 10s.—Boddington, Moreton-in-Marsh

2¾ h.p. Clyde, splendid order, horn, tools, lamp (separate generator); £10.—Clark, George Street, Ryde, Isle of Wight.

FOR Sale, 2¼ h.p. Beeston Humber, Dunlops, thorough order; first reasonable offer accepted.—J.B., 56, Cale Street, Chelsea, S.W.

LIVERPUDLIANS!—Call at 74, Bold Street, and see latest models of Triumph and Roc motors.—Hitchings are the sole agents.

MOTOR BICYCLES FOR SALE.

4 h.p. Bat, special built, faultless; £20, cost £63.—Legge, Noah's Ark, Derby.

2¾ h.p. F.N., 26 wheels, perfect condition; £14; approval.—Birt Morris, Bourne.

1907 Triumph, faultless, new condition, spares, lamp; £33.—Fayle, Temple Road, Dublin.

2¾ h.p. F.N., magneto ignition; £17.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

TWIN Rex, 5-6 h.p., almost new; £16; owner going abroad.—95, Main Street, Kilwinning, Ayrshire.

ROC, 5 h.p., twin, with castor wheel sidecar, new condition.—Rose, 28, Frith Street, Shaftesbury Avenue, W.

QUADRANT, 3½ h.p., magneto, like new; £25.—Rose, 28, Frith Street, Shaftesbury Avenue, W.

5 h.p. Twin Rex, nearly new; £22, or exchange for good 3½ h.p. and cash.—Morris, photographer, Bourne.

3¼ h.p. Clarendon, good running order; price £10, or near offer.—Stanbury, Willowhayne, Worcester Park, Surrey.

2½ h.p. Singer Motor Cycle, in perfect condition, magneto ignition, acetylene lamp, etc.; £9.—B. Golding, Daventry.

QUADRANT, 3 h.p., just been enamelled, plated, low; £13, or offer.—Goldwasser, 25, Southampton Street, Pentonville.

1906 Rex, 5-6 h.p., twin-cylinder, Clinchers, spring frame, good condition; cash offers only.—Mawson, draper, Morecambe.

2½ h.p. M.M.C., in good order, spares, Watawata, trembler, must sell; £8 10s.—Dee, 41, Hertford Road, Lower Edmonton.

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

2 h.p. Lightweight, Buchet engine, very powerful, low frame, vertical engine; £15. — Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

3 h.p. Triumph, perfect running order and condition; price £20. — Gressoney, Stormont Road, Hampstead Lane, Highgate, N.

TRIUMPHS, 1908, immediate delivery, second-hand Triumphs taken exchange. — Morriss, 139, Finchley Road, Swiss Cottage, N.W.

3 h.p. Humber, free engine, starting handle, low frame, perfect running order; £12, or best offer. — Robson, 11a, Blomfield Street, E.C.

1 h.p. Lightweight, excellent condition, fast little machine; £7 10s.; seen and tried after 8.30 p.m.—F.B., 53, College Street, Islington, N.

5½ h.p. Twin N.S.U., two ignitions, two speeds, perfect condition; going cheap.—Particulars, Box 9,375, *The Motor Cycle* Offices, Coventry.

£8.—2¾ h.p. Peugeot, good condition, lamp, horn, two accumulators, new back tyre and inner tube. — 318, Cable Street, St. George's, E.

ROC and N.S.U. Agent.—In stock: 4 h.p. Roc, with two-speed gear, 3 h.p., 3½ h.p., and 6 h.p. N.S.U.'s.—Hodgson, 10, Horton Road, Bradford.

2½ h.p. Kerry, splendid condition, spray, very fast, tyres almost new, 26in. wheels; a bargain, £10 10s.—Egbert Spearman, Bishop's Stortford.

NEW Phelon and Moore, 1908 model, 2¾ h.p., Grose non-skid on back wheel; take £43 cash; giving up motoring. — 8, Oxford Road, Southport.

3 h.p. Triumph, Fafnir engine, plain coil, accumulator, new Watawata and Palmer, grand hill-climber.—99, Mitcham Road, Tooting, S.W.

ORMONDE, 3 h.p., accumulator, headlight, tyre new, low, long handles, good running condition; trial; £8 10s., or nearest offer. — White, Grenofan, Heathfield, Sussex.

Special Bargain.

3½ h.p. AUTOMOTOR, vertical engine, Longuemare carburetter, genuine B.S.A. motor frame, all accessories, guaranteed £8 17 6

CASH, CREDIT or EXCHANGE.

4½ h.p.	G.B., magneto, Nala two speeds..	£37	0
3 h.p.	FAIRY, twin, like new	19	0
3½ h.p.	MINERVA, magneto ignition ..	22	0
5½ h.p.	Magneto Twin REX, 1907	29	0
5½ h.p.	REX-DE-LUXE, twin tyres	26	0
4½ h.p.	Twin MINERVA, 1907	27	0
4-5 h.p.	Twin GARRARD, Mixfield	16	0
3½ h.p.	BAT, spring frame, 26in. wheels..	18	0
5 h.p.	Twin KERRY, very low	22	0
5 h.p.	Twin PEUGEOT, lovely goer ..	23	0
5½ h.p.	Twin REX, lovely goer	20	0
4 h.p.	ANTOINE, magneto, 1907	22	0
3½ h.p.	BROWN, M.O.V., vertical	17	0
3½ h.p.	1906 REX, spring forks, etc.	15	0
3½ h.p.	1905 REX, spring forks, 26" wheels	13	0
3 h.p.	TRIUMPH, lovely goer	25	0
3 h.p.	MINERVA, vertical, M.O.V.	12	0
2¾ h.p.	MINERVA, spray, 26" wheels....	11	0
2½ h.p.	TRIUMPH, smart goer	12	0
3 h.p.	KERRY, fine machine	12	0
2¾ h.p.	JAP, spray, footrests	11	0

LIGHTWEIGHTS, NOW IN FASHION.

1¾ h.p.	MINERVA, spray, 26" wheels....	£6	10
2 h.p.	QUADRANT, spray, smart	7	10
2½ h.p.	HUMBER, spray	9	0
2½ h.p.	REGAL, vertical, spray, 26" wheels	9	0
2¾ h.p.	WHITELEY, spring, vertical	9	0
2¼ h.p.	CYCLONE, spring, vertical.....	7	0

TRICARS.

3½ h.p.	MINERVA, M.O.V., fan-cooled ..	£17	0
3½ h.p.	QUADRANT, Phœnix, two speeds	18	0
5½ h.p.	REX, twin engine, two speeds ..	22	0

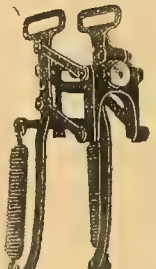
ENGINES.

2¾ h.p.	ANTOINE	£1	15
3 h.p.	ARIEL engine, powerful	2	19
3½ h.p.	1907 QUADRANT, new, perfect..	4	10
3 h.p.	BREVETE, good goer	2	19
3 h.p.	AUTO-MOTOR, fine engine	2	19
3 h.p.	DE DION, fitted two speeds	4	0
4 h.p.	STEVENS, splendid engine	5	0
4½ h.p.	ASTER, water-cooled	5	10
3½ h.p.	STANDARD, good	3	3
3½ h.p.	QUADRANT, quite new, complete	6	10
3 h.p.	DE DION pattern	2	19

SIDECARS.

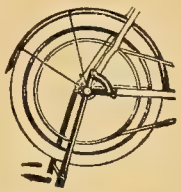
Rigid	£3 10	Ariel, rigid.....	£3 10
Montgomery	4 10	British Standard	5 0

CANTILEVER SPRING SEATS.



Luxurious and strong. Fit any machine. 10/- each.

200 LYCETT'S "LIGHTNING" STANDS.



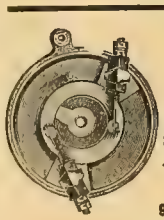
FIRM. RIGID. STRONG. For either 24in., 26in., or 28in. wheels. Note the price— 4/9 per pair.

Send for Priec List of Accessories. Pounds saved.

High-Class MOTOR CYCLES WANTED FOR CASH. MONEY WAITING.

E. FARRAR.

Albion Works, Square Road, HALIFAX.



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CONTACT MAKERS, DISTRIBUTORS, SPARKING PLUGS,

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SPRING HANDLE-BARS

Are acknowledged by all to be the best.

WADE & JONES, Ltd., 95, Colmore Row, Birmingham.

MOTOR BICYCLES FOR SALE.

5½ h.p. Twin Kerry, Bennett-Monk free engine, reliable; photo 2d.; £20, bargain; approval. — Rudland, 39, Victoria Road, Middlesbrough.

3 h.p. Whitley, Chater-Lea, Dermatine, Clinchers, brass headlight, low; £9 10s., or cash and sidecar; after 7.—1, Treport Street, Wandsworth.

MINERVA, twin-cylinder, 4½ h.p. engine, in perfect condition, £8 10s.; Phœnix two-speed gear, chain drive, £3 10s.—Sloan, Boyle, Ireland.

3½ h.p. Brown, magneto ignition, Palmer tyres, Millennium stand, splendid order; sacrifice £19. — Lloyd, boot manufacturer, Leamington.

LADY'S Motor Bicycle, Singer, 2½ h.p., spring pillar seat, splendid condition; £15, inclusive speedometer.—F.S., 21, Duke's Avenue, Muswell Hill.

LIGHT Low Rex Motor Cycle, 26 wheels, 3½ h.p., perfect condition; exceptional bargain, £12; photo; trial.—Lloyd, Victoria Terrace, Leamington.

ARIEL Lightweight, 2½ h.p., spring forks, two accumulators, stand, spares, tools, good condition; great bargain, £12.—Parkin, East Boldon.

2¾ h.p. Late 1907 Minerva, perfect, £15 15s.; also 3 h.p. Rover, £15; no offers; owner bought car; no room. — Motor, 15, Halford Road, Leyton.

3½ h.p. Antoine, low frame, Longuemare carburetter, Palmer tyres, Watawata belt, worth seeing; price £16.—Squire, 122, Hackney Road, London.

MINERVA, 1907, standard model, 3½ h.p., new June, scarcely used, Continentals, unpunctured, spring forks; £23.—Wray, 18, Terminus Road, Eastbourne.

LIGHTWEIGHT 2½ h.p. Jap, low built, Druid forks, spring saddle, Whittle belt, splendid running order; trial; £18; bought car.—Ridge, Carlton House, Enfield.

F.N., 2¾ h.p., just thoroughly overhauled, spriug forks, low, fast, new Dunlop, long bars, accumulator, accessories; £13.—J.S., 15, Station Road, Watford.

2¾ h.p. F.N., Chater-Lea, Duco-Flex, M. and B. plain coil, girder, nearly new, low frame; expert examination; £19.—Motor, 73, Manor Road, West Ham, Essex.

GENUINE 4 h.p. Bat, splendid condition, accumulator ignition, well sprung, footboards, accessories; £19, or offer.—Blomer, 22, Broad Street, Leominster.

4½ h.p. Twin-cylinder Minerva, R.O.M. contact breaker, very serviceable and perfect machine; £21, very lowest.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3¼ h.p. Rex, Longuemare, ¼in. Continental, adjustable pulley, rebushed and new piston, in splendid order; bargain, £10 10s.—Clarke, 13, Blythe Vale, Catford.

3½ h.p. Kelecom Motor Cycle, condition as new, must sell, as having tricar; any trial here; £16, or offers.—Harris, 58, Rathbone Street, Canning Town.

IF Intending Purchasers of motor cycles, tricars, etc., will communicate with Box 9,426, they will hear something to their advantage, Northern riders especially.

2½ h.p. Minerva, genuine throughout, in perfect condition, with tools, spares, brass headlight, etc.; £12, or near offer.—White, 6, Kilworth Avenue, Southend-on-Sea.

2¾ h.p. Kerry Motor Cycle, splendid running order, reliable, new belt, horn, stand, toolbag, some spares; seen evening; 10 guineas cash.—Miller, 46, Glenloch Road, Haverstock Hill, London, N.W.

3½ h.p. Quadrant, 1906 pattern, but very little used, and as new, enamel and plating perfect, spring forks, tyres unscratched, very fast and splendid hill-climber, with all spares, stand, etc.; price £25, no offers.—G.G., 34, Cambridge Place, Paddington, W.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—4½ h.p. twin Minerva, 2½in. tyres, standard; £25.

MAUDE'S.—Rex, 1907 model, blue finish, 5 h.p., splendid condition; £22.

MAUDE'S.—Rex de Luxe, Roc free engine, in new condition throughout; £28.

MAUDE'S.—Rex, 6 h.p., 2½in. Model de Course, Continentals, cantilever seat; £21.

MAUDE'S.—Rex, 3⅜ h.p., spring forks, spray, trembler, 1906 model, a beauty; £15.

MAUDE'S.—6 h.p. Bat, Jap engine, just been overhauled by the makers, 1907 model; £32.

MAUDE'S.—Rex, 1905, low built, spray, 26in. wheels; £12.

MAUDE'S.—Rex, 1904, Phœnix two-speed gear, suit sidecar; £13.

MAUDE'S.—Rex, 1904, 3½ h.p., in very good condition; £10.

MAUDE'S.—Rex, 3 h.p., vertical, beautifully enamelled; £7.

MAUDE'S.—3½ h.p. Minerva, new rear tyre, vertical, being thoroughly overhauled; £14.

MAUDE'S.—Werner, twin-cylinder, 3½ h.p., 26in. wheels, low built, spring forks; £18.

MAUDE'S.—Clarendon, 3 h.p., vertical engine, beautifully enamelled in green; £10.

MAUDE'S.—2¾ h.p. Minerva, in good running order throughout; £7.

MAUDE'S.—Fafnir, 3 h.p., 26in. wheels, long handle-bars, low built; £12.

MAUDE'S.—Centaur, 3½ h.p., vertical, B100 saddle, low built, free engine, 26in. wheels; £15.

MAUDE'S.—Vindec Special, 2⅜ h.p., magneto (high tension), low built, 26in. wheels, splendid condition; £17.

MAUDE'S.—Minerva, 2½ h.p., spray carburetter, very good tyres; £10.

MAUDE'S.—3½ h.p. Rover, vertical, free engine, 26in. wheels, just the thing for a sidecar; £20.

MAUDE'S.—Jap, 2½ h.p. engine, like new, £8; Cunard, 3½ h.p., £10.

MAUDE'S.—Quadrant, 2 h.p., £6; Antoine, 2 h.p., £5.

MAUDE'S.—1¾ h.p. N.S.U. lightweight, magneto, late 1907 model; £20.

MAUDE'S.—Mitchell, spray carburetter, good tyres; special price £5.

MAUDE'S.—Fafnir, 2½ h.p., £10; Minerva, 2 h.p., spring forks, £9; another, £8.

MAUDE'S. — Ariel lightweight, 26in. wheels, 2½ h.p., £10.

MAUDE'S.—Bayliss, 3½ h.p.; £10; splendid puller.

MAUDE'S.—Noble, 3 h.p., spray, 26in. wheels, low built, perfect order; £10.

MAUDE'S.—De Dion, vertical, 2¾ h.p., long handle-bars, spray carburetter; £10.

MAUDE'S.—Singer, 2 h.p., magneto, nonskid to rear; £8.

MAUDE'S.—The machines listed below are ideal lightweights, and can be recommended for solo work.

MAUDE'S.—1½ h.p. Gerrard, new front tyre, spray carburetter, coil and accumulator ignition; £6.

MAUDE'S.—2 h.p. Ormonde, belt drive, spray carburetter, very good puller; £6.

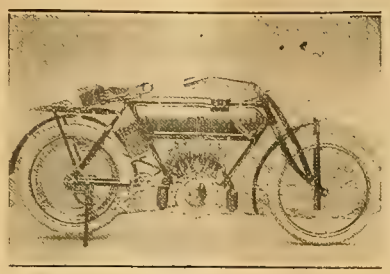
MAUDE'S.—1¾ h.p. Minerva, spray, good tyres, guaranteed running order; your cycle and £4.

MAUDE'S.—2 h.p. Zedel, newly painted, engine and everything perfect, weight 80lbs., 26in. wheels, very low built; £12.

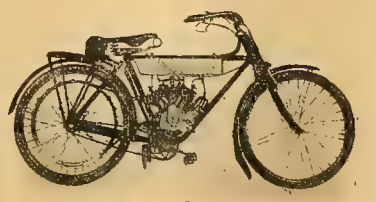
MAUDE'S.—2 h.p. Minerva, M.O.V., spray carburetter, good tyres; £6.

MAUDE'S.—To prove that our second-hand motor cycles are intended for road usage, write for our terms for road delivery, and you will be a buyer.

MAUDE'S Motor Mart, Powell Street, Halifax. Sole agents for Minerva motors.



MINERVA.



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LIBERAL EXCHANGE OFFERS for New Motor Cycles of any make.

EARLY DELIVERIES.

TRICARS.

	£	s.	d.
Garrard Tricar, three-speed, water-cooled	30	0	0
Riley, 4½ h.p., two-speed, water-cooled	35	0	0
Rex Triette, 6 h.p., twin-cylinder	28	0	0
Humber Tricar, chain drive	15	0	0
Rexette, 8-10 h.p., open frame, two speeds, water-cooled, seat three, wheel steering	40	0	0
Aster Tricycle, in lovely condition and perfect running order for	5	0	0
Lovely Sidecar, 28in. wheel, tyres as new	4	10	0

CARS.

Gobron Brillie, 16 h.p., equal wheels, very fast	100	0	0

Motor Cycle, Tricar, or Small Car part.

ACCESSORIES.

2½ Jap Engine and Longuemare Carburetter	2	15	0
Osborne Four-speed, perfect	2	15	0
Osborne Free Engine	1	7	6
Electric Horn Attachment	0	5	0
Salsbury Car Headlights, pair	5	0	0
¾in. Leather Belting, per foot	0	0	6½
Lightweight Engine, 1½ h.p.	2	0	0
Twin Trembler Coil	0	12	6
"Star" Porce ain Plugs	0	1	0
Charging Plant (large)	4	0	0
Kelecom 2¾ Engine	3	0	0
Steering Wheel, dished	0	7	6

"STRATEX" BELTING.

¾in.	0	10	6
1in. (4 ply)	0	15	6
1in. (5 ply)	0	17	6

per 8ft. 6in. lengths.

CONTINENTAL TYRES.

26 x 2in.	24/3	28 x 2in.	25/6
26 x 2¼in.	28/9	28 x 2¼in.	30/-
26 x 2½in.	33/-	28 x 2½in.	35/3

3/- allowed on old covers, and 1/6 on old tubes in part payment.

IMMEDIATE DELIVERY GUARANTEED.

Maude's Motor Mart,

POWELL STREET, HALIFAX

(behind the Victoria Hall).

MOTOR BICYCLES FOR SALE.

FOR Sale, Triumph, 3½ h.p., 1907, standard, magneto, perfect condition, heavy tread on back tyre; price £33, no offers.—No. 9,438, *The Motor Cycle* Offices, Coventry.

MOTOSACOCHE, magneto or accumulator, 1908, new model, Empire typewriter, or collection of stamps, taken in part payment. — Ignatius Knaster, Cambridge.

3½ h.p. Genuine Minerva, plating, enamelling, belt, tyre, all new, spring forks, spares; cash wanted, sacrifice £20, near offer. — Write, Beadle, 154, Powis Street, Woolwich.

3½ h.p. Minerva, spring forks, spring saddle, special silent exhaust, perfect order, just been overhauled and re-enamelled; £16 10s. — Hicks, 67a, High Street, Maldon, Essex.

4½ h.p. Twin Minerva, Chater-Lea frame, Druid spring forks, 2½in. Palmer tyres, in first-class order; price, including numerous spares, £27 10s.—Hayward, Skinnergate, Darlington.

3⅜ h.p. Rex, spring forks, low frame, stand-carrier, horn, two accumulators, and other spares, ridden 900 miles; genuine bargain, £11 10s.—Plumber, 13, Northlands Street, Camberwell.

ROC, 4 h.p., standard Military Model, free engine, single gear, magneto ignition, absolutely new, as received from makers, late 1907, cancelled order; £35.—Hartley Clegg, Motors, Burnley.

3 h.p. Quadrant, perfect goer, spring forks, B100 saddle, 2½ Palmer tyres, two accumulators, stand, spares and tools, numbers, lamp, etc.; £15, close offer.—92, Ingram House, Stockwell.

FOR Sale, 2½ h.p. Bradbury Motor Cycle, spray carburetter, thorough working order, condition equal to new; £10, offers wanted.—Apply, J. Horuby, cycle dealer, Great Eccleston, near Garstang.

2½ h.p. Kerry, overhauled last month, perfect running order, and excellent condition; seen any evening between 7 and 8 by appointment only; £13; no offers entertained.—C.C., 18, Allison Road, Hornsey.

FOR Sale, four-cylinder Binks motor cycle, 5 h.p., free engine, footboards, bucket seat, most comfortable, reliable and fast, guaranteed; £24; consider exchange.—Whitehouse, 32, Reform Street, Dundee.

3 h.p. Quadrant, low type, Longuemare carburetter, girder forks, Brooks saddle, tyres sound, new belt and accumulator, perfect running order, little used; £16. — Stokes, 97, High Street, Evesham, Worcester.

£14 (no offers).—Ariel-Minerva, 2¾ h.p., handle-bar control, engine (new cylinder) just overhauled, tyres splendid, lamp, horn, carrier, stand, new spare belt.—C.J.N.P., 14, Dalgarno Gardens, North Kensington.

1½ h.p. Minerva, F.N. spray, splendid condition, climb anything, equal many 2½ h.p., new Palmer special tyres; best offer, or exchange 2½ h.p. Minerva and cash.—F. W. Maratal, Stoke Goldington, Newport Pagnell, Bucks.

3½ h.p. Minerva, magneto, Mabon clutch, tyres uncut, new Shamrock belt, splendid condition, only ridden nine months, all accessories, tools, spares; £23.—18, Clerkenwell Road, evenings, 138 Bethune Road, Stamford Hill, N.

3½ h.p. Peugeot, 80 by 98, vertical engine, geared 3 to 1, very fast machine, has spring forks, and would be suitable for road or track racing; this machine is practically new; £22 10s.—Wauchope's, 9, Shoe Lane, London.

1907 3½ h.p. Triumph Motor Cycle, spring forks, magneto, in perfect condition, Smith's butt-ended tubes, spare valve, practically new, not done 600 miles; only requires to be seen; £36.—Duncan, 2, St. Mary's Place, St. Andrews, Fifeshire.

2¾ h.p. Kerry, specially built open frame, new Stratex belt, B90 saddle, spring seat-pillar, tyres in good condition, and Millford rigid sidecar, with apron, thoroughly overhauled; bargain, £14 10s., or separate.—48, Station Road, Manor Park, Essex.

MOTOR BICYCLES FOR SALE.

HAMPSTEAD.—2¾ h.p. Minerva, vertical, M.O.V., 26 wheels, lamp, horn, stand, etc., splendid condition; £13.

HAMPSTEAD.—3½ h.p. Bat, spring frame, non-skid tyre, all spares; £16, great bargain.

HAMPSTEAD.—1908 1¾ h.p. lightweight F.N., brand new, slightly soiled; only £30.

HAMPSTEAD. — 2¾ h.p. Griffon, 1907, splendid condition, new tyre, all spares; £14, bargain.

HAMPSTEAD. — 2¾ h.p. Brown, grand condition, just overhauled, all spares included; £11, bargain.

HAMPSTEAD.—5½ h.p. twin Kerry, very low, long handle-bars, suit sidecar; £20.

HAMPSTEAD.—1908 lightweight Griffon, shop-soiled; only £27; climb any hill; great bargain.

HAMPSTEAD.—Agents for F.N.'s, Triumphs, Minervas, Griffon; liberal allowance, or exchanges.—5, Heath Street, Hampstead, N.W.

3½ h.p. Vindec, Truffault, magneto; £27. —85, Fairholt Road, Stoke Newington.

3½ h.p. London (new), M.O.V.; £4, or offer. — 25, Green Dragon Lane, Brentford.

£8.—Humber, 2¾ h.p., very little worn; offer.—18, Hailsham Avenue, Streatham, S.W.

2¾ h.p. Kerry; best offer gets it; fast, reliable. — C.S., 587, Seven Sisters Road, Tottenham.

3 h.p. Kerry, Clinchers, scarcely used, splendid hill-climber.—Varcoe, St. Austell, Cornwall.

TRIUMPH, 3 h.p., nearly new, fast, and powerful; £17 10s.—Werry, 200, Cia Street, London, E.C.

1¾ h.p. Minerva, spray, 26in. Clinchers, grand condition; £6, offers.—Ryder, Eaton Bray, Beds.

GOOD, reliable 6 h.p. Civil Service, spring forks, footboards; £25.—Frank Firth, Bingley, Yorks.

3½ h.p. Fafnir, Chater No. 6, spring forks, perfect; £18. — Layland, Beechfield, Greenhill, Wigan.

LIGHTWEIGHT, splendid order, tyres uncut; £8 10s., bargain.—53, Belmont Street, Kentish Town.

3½ h.p. Minerva, perfect condition; compulsory sale, bargain, £14.—Gray, Fishergate Terrace, Portslade.

CLYDE 2 h.p. Motor Cycle, Clincher, magneto, thoroughly overhauled; £9.—G. H. Wait and Co., Leicester.

CLYDE 2¼ h.p. Motor Cycle, Clincher tyres, magneto, recently overhauled; £10.—G. H. Wait and Co., Leicester.

2¾ h.p. Curry Motor Cycle, Longuemare carburetter, A Won tyres, recently overhauled; £13 10s.—G. H. Wait and Co., Leicester.

REALLY Powerful 2¼ h.p. Stevens; cost £35, will sacrifice £7; perfect.—29, Chester Street, Wolverhampton.

3½ h.p. White and Poppe, genuine Swift, perfect; £16 16s. — H., Westwood, Broad Lane, Hampton, Middlesex.

C. A. HUNTER'S Motto, "Promptitude." Quadrant motor cycles less than list prices.—45, Park Street, Bristol.

2¾ h.p. De Dion, working order; £10, or good push bike and cash.—6, Ogilvie Road, Desborough, High Wycombe.

GENUINE 3½ h.p. Quadrant, with sidecarriage; bargain, £22.—Jakeman, 75, Hawthorne Street, Totterdown, Bristol.

1908 Light Twin Vindec, not ridden 300, as new; bought car; £42.—Box No. 9,488, *The Motor Cycle* Offices, Coventry.

ONE 2¾ h.p. Kerry Motor; £15, or will exchange two cycles and £10.—C. E. Bennett, 3, Morgan Street, Canning Town.

4½ h.p. Twin Minerva, terrific pacer, new condition, Palmer cord back; 24 guineas. — Varcoe, St. Austell, Cornwall.

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Prompt delivery of all 1908 models. Any machine taken in exchange at a liberal allowance. Get our quotation before dealing, or you'll regret it. Our requirements of second-hand machines enable us to make

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Genuine, powerful, charming TWIN REX, guaranteed in running order, spring forks, low built, goes like a flash, £22.

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1908	2½ h.p. REX Featherweight, magneto	£26	5
1908	3½ h.p. REX Tourist, magneto	36	15
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1908	5 h.p. REX Tourist, magneto	42	0
1908	5 h.p. REX DE LUXE, magneto	52	10
1908	3½ h.p. N.S.U., magneto	42	0
1908	5½ h.p. N.S.U., magneto	52	0
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1907	5 h.p. REX, spring forks	23	0
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SECOND-HAND MACHINES.

	5½ h.p. REX DE LUXE, mag., Roc clutch	£27	10
	5½ h.p. N.S.U., spring forks, 1907	27	10
	3½ h.p. PHELON & MOORE, magneto	34	0
7-9	h.p. PEUGEOT, practically new	30	0
6	h.p. Twin ANTOINE, spring forks	25	0
6	h.p. 1907 Twin REX	23	0
6	h.p. 1906 Twin REX	22	0
5	h.p. Twin ALCYON, N.S.U., two speeds	23	10
4	h.p. Twin WERNER, fine machine	19	19
3½	h.p. N.S.U., magneto	22	10
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4	h.p. ANTOINE, 26×2¼in. Clinchers	16	10
3	h.p. BAT, like new, two speeds	20	0
3½	h.p. SIMMS, magneto, 2¼in. Palmers	17	10
3	h.p. QUADRANT, spring forks, spray	13	0
3½	h.p. 1906 REX, spring forks, tyres good	15	10
3½	h.p. KERRY, vertical, spring forks	16	10
3½	h.p. MINERVA, spring forks, M.O.V.	17	10
2¾	h.p. MINERVA, spring forks, M.O.V.	14	10
3½	h.p. CLARENDON, spray, fine tyres	13	10
3½	h.p. 1907 Magneto REX, two speeds	24	0
3	h.p. M.M.C., vertical, spray, Palmers	13	0
5½	h.p. Twin REX, cantilever, 2¼ P Unions	22	0
3½	h.p. REX, trembler, aluminium finish	11	10
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2½	h.p. COVENTRY EAGLE, long bars, sp'y	11	10
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3	h.p. ROVER, 26×2¼in., Palmers, spray	13	10
3	h.p. LLOYD'S, fine, 2¼in. Palmers, spray	13	10
2½	h.p. AURORA, vertical engine, spray	11	0
3½	h.p. HOBART, excellent condition, spray	12	10
2	h.p. MINERVA, spray, good machine	8	10
3½	h.p. REX, spray, fine climber	11	10
3½	h.p. MINERVA, 26×2¼in. Clinchers	16	10
3	h.p. GIVAUDAN, nearly new, vertical	16	0
3½	h.p. REX. 26×2in., spray, black finish	13	15
2¾	h.p. STEVENS, spray, 26×2 Clinchers	11	10
2½	h.p. BUCHET, vertical, good condition	11	10
2½	h.p. SINGER, magneto, chain drive	7	10

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6	h.p. Twin ADVANCE, wheel steering	£35	0
5½	h.p. REX TRIETTE, twin cylinder	29	10
4½	h.p. Twin-cylinder MINERVA	32	10
6	h.p. ANTOINE, Chater-Lea, three speeds	39	10
5	h.p. HUMBER, open frame, two speeds	45	0
5½	h.p. QUADRANT, two speeds	35	0
4	h.p. REX Tricar, Phœnix, two-speed	21	0
3½	h.p. REX. Osborne, four speeds	24	0
5½	h.p. REXETTE, water-cooled, two speeds	35	0

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BARGAIN.—2¾ h.p. Hobart, low seat, Longuemare spray, good order, £10; also good trailer, £2. — Ewart, draper, Maryport.

2 h.p. Triumph, 3 h.p. Quadrant, and 2¾ h.p. De Dion-Bat; cheap; guaranteed.—Box 9,489, *The Motor Cycle* Offices, Coventry.

3 h.p. F.N. Motor Cycle, in perfect condition; open to expert examination. —Apply, 57, South Park Road, Wimbledon, S.W.

2½ h.p. Peugeot, spring forks, all in perfect order; £10 10s.—Pearson, Glengyron, Mount Pleasant Road, New Malden, Surrey.

3⅜ h.p. Rex, many improvements, E.I.C. coil, Bowden brake, etc., spares, perfect condition; £16 16s.—Bee, Chapel Street, Preston.

2¾ h.p. Minerva, spring forks, Bowden exhaust lift, stand, carrier, horn, lamp, spare tube; £16. — Lane, Rubber Works, Melksham.

2½ h.p. Durkopp, ball bearing engine, trembler, spray, spring forks, good condition; 10 guineas.—11, Avenue Road, Goldhawk Road, W.

KERRY, 5 h.p., twin, perfect condition, non-skid back, spares, 5 to 50 miles an hour; £17 10s.—Motor, 27, Cranbrook Park, Wood Green.

2¾ h.p. N.S.U., magneto, tyres 24in. by 2¼in., machine unscratched, as new, only run 400 miles.—8, Barrett Street, Manchester Square, W.

1907 3½ h.p. Ariel, in splendid condition, steel studded on back; absolute bargain, £16 10s.; seen any time.—104, Hampstead Road, N.W.

2¾ h.p. Clyde, magneto, Longuemare, Clinchers, thorough order; £17 10s.; after 7.—B. Poole, Killowen, Holden Road, Woodside Park, N.

4 h.p. Humber chain-driven motor cycle, with Trimo attachment, everything perfect, overhauled; any trial; offers. — Hunt, Cawthorne, Barnsley.

3½ h.p., Chater No. 6, Dermatine belt, new tyre, in good condition; take £12 12s. for quick sale; bought twin tricar.—50, Beverley Road, Hull.

6 h.p. J.A.P., Montgomery flexible sidecar, Palmer cords, two belts, spare tube and spares; £33; any trial.—Brown, 215, Broad Street, Birmingham.

2¾ h.p. Clarendon, Longuemare, 2¼ tyres, unpunctured, Elswick green, new accumulator, just re-bushed; £10.—Cox, 40, Leyspring Road, Leytonstone.

C. A. HUNTER, Bristol and District Agent for N.S.U.'s, L.M.C.'s, Silvers, and Quadrants. Telegrams, Hunter, Park Street, Bristol. Telephone, 2978.

3½ h.p. Vindec Special, Simms-Bosch magneto, 26 by 2¼ Palmer tyres, Brooks saddle, spares; £22; approval. — Eagles and Co., High Street, Acton, W.

MINERVA, 2 h.p., exceptionally good condition, specially fitted up, Palmer tyres, as new, many extras; £12 12s. —39, high Street, Marylebone, London.

3 h.p. Fafnir, Longuemare carburetter, Dunlops, two brakes, stand, carrier, toolbag, lamp, horn, spares; £16 10s.; perfect motor.—94, Clifton Crescent, Peckham.

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QUADRANT, 3½ h.p., with rigid sidecar, condition as new, with lamp, apron, toolbox, and spare parts; trial run given; price £32.—Robini, Dulwich Road, Herne Hill, S.E.

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£13.—3½ h.p. Centaur, in first-class order.—Boutle, 7, Elmington Terrace, Camberwell.

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TRIUMPHS in Rotherham.—Sole Agent, Ernest Cross, 45, Effingham Street. Early delivery.

ROC, 3½ h.p., magneto, free engine clutch, excellent order; £19 19s., close offer.—Below.

CENTAUR, 3½ h.p., late model, new condition; £15 10s.—Whittle, 41, Skelbrook Street, Earlsfield.

TWO-SPEED and free, 3½ h.p. Minerva, excellent order; £20.—31, Landor Road, Stockwell.

6 h.p. Antoine Twin, new condition, spring forks; £23.—47, Camden Grove, Peckham.

4½ h.p. Twin Minerva, spring forks; £26 10s.; wanted, 3½ h.p. Minerva.—92, Bromley Street, Stepney, E.

TRIUMPH, late 1907 model, guaranteed perfect throughout; £32; approval.—Parker, Melbourne, Derby.

FAFNIR, 3 h.p., Chater, Longuemare, low, powerful; £15, offer.—Whittle, Grocer, Merton Road, Wandsworth.

3 h.p. Advance, good condition, Palmer tyres, spare cover, etc.; £16, or near offer.—Jeffery, High Street, Guildford.

LEEDS.—3½ h.p. Rex, 1905, newly enamelled black, overhauled, perfect; £12; buying tricar.—H.E.P., 5, Leopold Road.

4¼ h.p. Excelsior, in splendid condition throughout; no rubbish; £16; must sell.—Stewart, Stirling Road, Dunblane.

TRIUMPHS, 1908 models in stock; liberal allowances for second-hand machines, any make.—Parker, Melbourne, Derby.

3 h.p. Quadrant and 2 h.p. Minerva, both been well kept and perfect; £12 and £8 10s.—J. Stimpson, Broad Walk, Stratford-on-Avon.

3½ h.p. White and Poppe, two accumulators, B.M. coil, Gloria belt, as new; £22.—S.C.P., 163, Balaam Street, Plaistow, E.

FAIRY, 2½-3 h.p., twin-cylinder, fast, lightweight, all spares and accessories; sacrifice £10 10s. — Dore, Wilden, Stourport.

KERRY, 5 h.p., Twin-cylinder, 2½ tyres, spring forks, only used three months; 25 guineas.—James, High Street, Daventry.

3½ h.p., Sarolea engine, nearly new, Chater-Lea frame, very low, Peter-Unions, Watawata; £16.—71, Burghley Road, Hornsey.

3½ h.p. 1907 Triumph, magneto, little used, perfect condition; trial by appointment.—Norman Hill, The Quadrant, Coventry.

£9 10s.—2¼ h.p. Lightweight, low, vertical, climb anything and beat most 3½ h.p.'s, nearly new.—26, Lansdowne Hill, West Norwood.

3½ h.p. Ormonde-Kelecom, Model de Course tyres, spring seat-pillar, fast, reliable; £11 11s.—Kennard, Woodbridge Hill, Guildford.

MINERVA, 3½ h.p., brand new, never been on the road, £24; sidecar, nearly new; 4 guineas.—2, Burne Street, Edgware Road, London.

2½ h.p. Jap, Chater-Lea, Stanley-Dermatine, Continental back, excellent little machine; £12, or offer.—E. Hay, Warley, Bromley, Kent.

£16.—Bargain, as new, 2¼ h.p. Minerva, Eadie's girder frame, Palmers (2¼), stand and lamp; 9 till 7.—Walker, 127, Fenchurch Street, London, E.C.

3 h.p. Excelsior, guaranteed perfect, new Stanley-Dermatine, Clinchers, as new, Longuemare and stand, plating and enamelling as new, just new wire and overhauled; £16, a genuine bargain.—Arthur Dixon, Coventry House, Earnoldswick.

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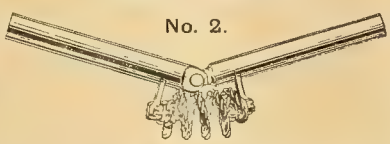

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4 h.p. Antoine, Dunlops, two accumulators, Watawata belt, carrier, etc., as new; £10 10s.; appointment. — 5, Belmont Villas, Chase Side, Enfield.

PROGRESS Depot, Cycle Makers and Motor Dealers, New Road, Blackpool. Sole agent for N.S.U. motor cycle for Blackpool and district.

3½ h.p. Triumph, late 1907, just like new, Palmer cord tyres, ready for tour; take £33; bought car.—Clarke, 8, Upper Tooting Park Mansions, Balham.

TRIUMPH, 3½ h.p., 1907, standard, magneto, perfect condition throughout, splendid hill-climber, heavy tyres; £33.—Carter, 77, Munster Road, Fulham.

3½ h.p. Minerva, splendid condition, spring forks, footboards, £15; Liberty sidecar, £4.—Hardcastle, 147, Leyton Road, Stratford, New Town, E.

3½ h.p. Jap, good as new, spring forks, very reliable, splendid hill-climber; trial allowed; £25; owner getting car. — G. Neame, Luton, Faversham, Kent.

3½ h.p. Triumph, 1907, just overhauled by makers, spare belt (new), tube, cover, lamp, cyclometer; £30.—Motor, Willoughby House, Sydenham, Kent.

7 h.p. Peugeot, low, comfortable, reliable, excellent condition, many extras; £25; trial; exchange lower power and cash.—Marsh House, Leominster.

1907 4½ h.p. Twin Minerva, nearly new, only ridden 500 miles, perfect condition; only £26, great bargain. — Garaged at Wauchope's, Shoe Lane, London.

VINDEC Twin, late 1907, two speeds, Whittle belt, carrier, horn, watch, perfect condition; cost £65, lowest £39.—Bridgman, c/o Priest, 16, Holloway Road, London.

2¾ h.p., Stevens engine, Brooks B100, Watawata, spring forks, Bowden belt rim brake, A Won tyres; great bargain, equal to new, £17.—Owen, Fruiterer, Oakengates.

3½ h.p. Rex, late 1906, spring forks, 26 by 2¼, all accessories, and spares, perfect throughout; trial; cash urgently wanted; £13.—Jones, 57, Edgware Road, London, W.

FOR Sale, £17, 5 h.p. motor bicycle, Kerry twin, with platform; too powerful for owner; would exchange for 3½ h.p. and cash.—G. Morris, Partridge Green, Sussex.

3½ h.p. Ariel, low, fast, reliable, 26 by 2¼ Palmer cords, back tyre and tube new, Watawata belt, cut-out, new 20 a.h. accumulator; £16. — Bull, 200, Church Road, Willesden.

TRIUMPH, 1906, 3 h.p., accumulator, in perfect condition, lately been overhauled and re-enamelled, new tyres and belt; £22, or nearest offer.—13, Blenheim Crescent, S. Croydon.

4 h.p. Antoine, nearly new, new back and new spare tyres, carrier-stand, Lucas Acetyphote lamp, spares, new sidecar; £23 lot. — Grover, 16, Winchester Street, Basingstoke.

DE DION, 2¾ h.p., genuine throughout, Crypto frame, splendid climber, all spares, nearly new tyres, good condition; nearest offer to £14 10s. has it.—Bowles, High Street, Ashford.

2½ h.p. Motor Cycle, Brown engine, low, 26in. wheels, good running order; £9, or exchange for gent's cycle and cash; also good trembler coil, 12s. — 1, South Street, Havant.

3 h.p. Rover, Chater No. 6 frame, built up January, 1908, Longuemare carburetter, Bassee-Michel coil, Dunlop tyres, everything as new; £22 10s.—73, Church Street, Camberwell, S.E.

£9 10s.—3 h.p. Excelsior, absolutely ready for road, just been overhauled, everything in perfect running order, and good Clincher tyres.—Particulars, 40, Vernon Street, Ipswich.

ROC, 4 h.p., 1907, Military Model, new May, free engine clutch, and magneto, absolutely perfect, been carefully used, not ridden during winter, lamp, bag, horn, carrier, foot pump, etc.; any trial; nearest offer £32. — Duckenfield, Netherton, Huddersfield.

MOTOR BICYCLES FOR SALE.

3 h.p. Howe, vertical engine, excellent condition, girder forks, stand, horn, accumulator, etc.; £12.

2 h.p. Quadrant; £5 10s.; going order.

3 h.p. Quadrant, excellent condition, complete; £16 10s.

5 h.p. 1906 Twin Rex, Peter-Union, non-skid back, accumulators, spares, etc.; £23.—Mellors, Carr Pit Road, Huddersfield.

2½ h.p. 1907 Lightweight Ariel, new; £25 lowest cash.—Wauchope's, 9, Shoe Lane, London.

WOLFE, 3½ h.p., long bars, low position, perfect order, fast machine; £12.—Below.

BRADBURY, 3½ h.p., splendid machine (reliable), 1906; £12; any trial.—Motor, 26, Offerton Lane, Stockport.

5 h.p. Twin-cylinder Rex Motor Cycle, very powerful; £16 10s.—Wauchope's, 9, Shoe Lane, London.

3½ h.p. Excelsior, M.M.C. engine, perfect machine; £10.—190, Mellison Road, Tooting.

3 h.p., Chase de Cart engine; £15 very lowest price.—Wauchope's, 9, Shoe Lane, London.

TWIN Rex, spring forks, trembler coil, fine order; £19. — Hardy's, Carlton Street, Halifax.

4 h.p. Twin-cylinder Hamilton, very fast machine; £12 10s.—Wauchope's, 9, Shoe Lane, London.

2½ h.p. Rover Lightweight, low and handy; £15.—120, Sewardstone Road, Victoria Park, E.

3¼ h.p. 1905 Lightweight Rex; £10 10s.; powerful on hills.—Wauchope's, 9, Shoe Lane, London.

3½ h.p. Minerva, Ariel sidecar attached, both in splendid condition; £20 cash.—Buckett, Twyford, Berks.

3 h.p. Fafnir, in Chater-Lea frame, a good sound roadster; £12 10s.—Wauchope's, 9, Shoe Lane, London.

NOTICE. — I can sell your present mount, and can always supply them at lowest price; state wants.—Reynolds, motor dealer, Pirbright.

3½ h.p. Minerva, 1907 model, condition as new; £21; very cheap. — Wauchope's, 9, Shoe Lane, London.

3 h.p. Fafnir, Chater-Lea, plain coil, Jebrons, accumulator, 2¼ Palmer cord, stand, engine, tools and spares; £14. —A., 20, Crooms Hill, Greenwich.

2½ h.p. Triumph, Jap engine, perfect running order; very lowest £16 10s. —Wauchope's, 9, Shoe Lane, London.

2 h.p. Minerva, perfect running order, good tyres, girder forks; £6 15s., or nearest offer, genuine bargain.—34, Arthur Street, Gravesend, Kent.

MINERVA, 2 h.p., mechanical valves, tyres almost new, Continentals, spray, long handles, low seat, splendid condition; £9 10s. lowest.—261, High Road, Balham.

3 h.p. Clarendon, 1907 model, 26in. wheels, low frame; £18 10s.—Garaged at Wauchope's, 9, Shoe Lane, London.

3½ h.p. F.N., four-cylinder, in first-class condition, 2½ Palmer cord tyres, with spares; no reasonable offer refused. —A. S. Blanch, 69, Church Street, Chelsea, S.W.

3½ h.p. No. 1 Ariel, spring forks, good condition; very low price at £15 15s.—Wauchope's, 9, Shoe Lane, London.

2 h.p. Werner Motor Cycle, in thorough order, 26 by 2¼ Clipper-Reflex, new Stanley - Dermatine, enamelling and bushes perfect; £7 10s.—Brown, Imperial Wharf, Townmead Road, Fulham.

3½ h.p. Vindec Special, Truffault spring forks, good going order; £16 10s., great bargain.—Wauchope's, 9, Shoe Lane, London.

TRIUMPH, 1907, 3½ h.p., magneto, all complete for £30, bargain; owner bought 1908 model.—To be seen at J. Popplewell and Sons, Woodbridge Road, Ipswich.

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MOTOR BICYCLES FOR SALE.

3½ h.p. Minerva, fitted with two-speed gear, a perfect machine for sidecar work; £19 19s.—Wauchope's, 9, Shoe Lane, London.

2 h.p. Minerva, recently thoroughly overhauled by makers, engine as new, spare belt, accessories, acetylene lamp, separate generator, splendid running order; £10.—17, Comeragh Road, West Kensington, W.

2¾ h.p. Minerva, 1907 model, in condition as new, fitted with variable pulley; £16 10s. lowest.—Wauchope's, 9, Shoe Lane, London.

3 h.p. Motor Cycle, vertical engine, Chater-Lea frame, 26in. wheels, Moseley tyres, Brown and Barlow carburetter, splendid running order; £15.—Selby, Royston, Barnsley.

3½ h.p. 1907 Triumph, magneto, spring forks, in condition as new; £32 10s. very lowest.—Wauchope's, 9, Shoe Lane, London.

BARGAIN, £69.—New 1908 Brown 5 h.p. twin-cylinder, two-speed and free engine, started with handle like car, with sidecar castor wheel attached.—Foxford, 14, Leat Street, Tiverton.

6 h.p. Matchless, J.A.P. engine, magneto ignition, sprung back and front, very speedy machine; £25.—Wauchope's, 9, Shoe Lane, London.

3 h.p. Fafnir, Chater-Lea fittings, Palmer tyres, good condition, very powerful, fast, and excellent hill-climber; sacrifice £13. — Motorist, 5, New Norfolk Street, Shoreditch, London.

FOUR-CYLINDER 4½ h.p. F.N., in perfect running order, very powerful on hills; £23 10s.—Garaged at Wauchope's, 9, Shoe Lane, London.

F.N., 1¾ h.p., lightweight, 1907, magneto, acetylene lamp, horn, Millennium stand, spares, tools, tyres and condition good, in running order; £30. — Ashley, Newbold, Ashby-de-la-Zouch.

2¾ h.p. Phœnix, fitted with two-speed gear and free engine, handle starting, 30 miles per hour; £17 10s.—Wauchope's, 9, Shoe Lane, London.

6 h.p. Twin Jap-Bat, disc clutch, just overhauled, re-plated, enamelled, 1in. Dermatine, Continentals, front new, thumb slides, toolbag; trial; £28.—3 Compton Road, Highbury, N.

4 h.p. Roc, 1907 model, two-speed gear and free engine, magneto ignition; £26; inspection and trial arranged.—Wauchope's, 9, Shoe Lane, London.

3½ h.p. Humber, perfect condition, lamp, B100 saddle, carrier, stand, automatic carburetter, handle-bar control, accumulators, spares; £15, or near offer.—Cowcher, Ebley, Glos.

2½ h.p. Lady's Clement-Garrard, vertical engine, loop frame; £12 10s.; very light machine, a splendid bargain —Wauchope's, 9, Shoe Lane, London.

TWIN-CYLINDER Motor Cycle, 5-6 h.p. brand new, M.O.V., 1in. belt, B. and B. carburetter, 2½in. tyres, two Bowden brakes; highest offer accepted.—Particulars, P. W. Hobbs, Blandford.

5 h.p. Vindec Special, 1907 model, Truffault forks, magneto, spring forks Mabon clutch, not run 300 miles; £38. — Wauchope's, 9, Shoe Lane, London.

5 h.p. Vindec Special, 1907 model, fitted with their two-speed gear and magneto ignition, Truffault forks, condition like new; £42; exchange arranged.—Wauchope's, 9, Shoe Lane, London.

5 h.p. Latest Vindec Special, Touris Trophy model, in the pink of condition, very fast; £33 10s., splendid bargain —Wauchope's, 9, Shoe Lane, London.

MOTOR Bicycle, M.M.C. engine, 3½ h.p Chater-Lea frame, first-rate order Century tandem tricar, 5 h.p., Aster, good condition, many spares; what offers?—C.S., 1, Castlebar Road, Ealing.

MINERVA and Rex. — We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices cash, exchange, or gradual payments charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road Old Trafford.

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5 h.p. Twin Kerry-Abingdon Tricar, two speeds, very fast, grand hill-climber, all new tyres, £25; also 3 h.p. Beeston Humber motor cycle, what offers?—Apply, Farnworth, Stow-on-the-Wold.

RILEY Tricar, 9 h.p., 1907 pattern, Dunlop tyres, many extra spares, accessories and fitments, fast and powerful; any examination or trial; splendid condition; £75.—Briggs, Green Lane, Carnoustie.

REX Litette, 6 h.p., water-cooled, new September last; cost £70; have invoice; perfect condition; lowest cash price £35; seen and trial after 7 o'clock.—Ramsay, 32, Beversbrook Road, Tufnell Park, N.

OPEN Frame Tricar, 4½ h.p., Stevens engine, water-cooled, wheel steering, two speeds, new Dunlop car tyre on back, splendid condition; genuine bargain; spares; £25.—Owen, fruiterer, Oakengates.

QUADRANT Carette, 6½ h.p., two speeds, wheel steering, chain drive, coach seats, quickly convertible to runabout, good climber, fine condition; sacrifice £33, offers considered; trial.—309, Brighton Road, Croydon.

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HUMBER Tricar, 3½ h.p., very light, Phelon and Moore two-speed, in good condition, all accessories, and many spares; any reasonable cash offer considered; can be seen any evening.—Haylor, 127, Walm Lane, Cricklewood.

QUADRANT Tricar, 6½ h.p., 1907 model, perfect condition; cost £95 cash, without extras; scarcely ever used, owing to illness; reasonable offer entertained.—Particulars, photo, and appointment for trial, write, Ashmere, Queen's Road, Hazel Grove, Stockport.

ARMADALE Coach-built Tricar, 8-10 h.p. Stevens engine, three speeds, reverse, wheel steering, Thermo water-cooled, tyres 700 by 85, large studded band on back, also spare tyre; any trial; £50, or near offer.—Earl of Beaconsfield, Grange Road, Plaistow, E.

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SIDECAR, rigid, 26in., as new; £4 10s.—S., 14, London Lane, Hackney.

ALMOST New Sidecar; £5 10s.—Chapman's Garage, Childs Hill, N.W.

CANE Montgomery Sidecar, almost new; £5 5s. See Bat.—Legge, Noah's Ark, Derby.

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PLEASE NOTE

We can supply all parts for 2¾ and 3½ h.p. F.N. Engines.

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"KUMFO Sponge Rubber Grips, ⅞in. or 1in. bars, 2/6 per pair.

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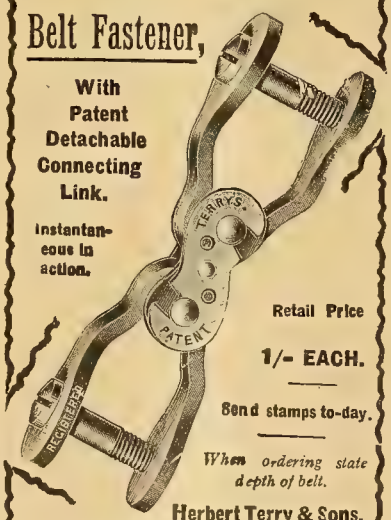

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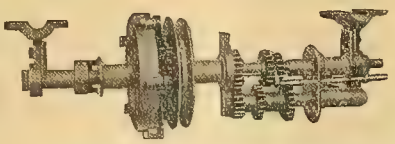

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BOOTH.—High-class Mills-Fulford sidecars, at popular prices; shun cheap-built sidecars.

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BOOTH for sidecars; ask for prices.—Booth's Motor Exchange, Coronet Works, Wade Street, Halifax.

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LIBERTY Sidecar, adjustable any machine, 26 or 28 wheel; £4 5s.—Joyner, 2, Parnell Road, Bow.

MONTGOMERY Sidecar, new condition; £5 10s.; wanted, forecar.—Dales, Ellison Villas, Gateshead.

SEVERAL Side and Forecars, cheap! Send requirements, or 1d. stamp for list.—Farrar, Square Road, Halifax.

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OUR Name will be handed down from generation to generation as the pioneers of the only safe and sociable attachment for motor cycles extant. Inventors and actual manufacturers of sidecars. The advantages over all other rigid makes are these can be taken on and off in two minutes. Fit any machine without alteration. The lowest built, thereby ensuring perfect safety. — Oakleigh Motors, Ltd., West Dulwich.

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6½ h.p. Humber, three speeds, reverse, perfect running order, guaranteed smart little two-seater; lowest 50 guineas. —15, Halford Road, Leyton.

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Percy Cycle Co., Ltd.,

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Two 3 h.p. N.S.U.'s, Magneto	24	0
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3½ Twin Werner, plating and enamel new	18	10

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Exhaust Valves, "*Non-Corrosive*" *special nickel alloy*, **2/6. Piston Rings** (*three*) **2/3. Reboring and New Piston, 14/-. New Cylinder, 27/- Variable Pulley, 8/6. Gears Cut. Rebushing. New Parts. Patent Fans. Spring Forks,** *front or rear.* **Rests. Silencers Gears, Magnetos, Plugs: E.I.C. 4/1, E.K. 2/1 Our list will aid you if in trouble.**
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TWO-SEATED Car, De Dion engine, 6 h.p., two speeds, Dunlop tyres, inclined wheel steering; £28; accept tricar or motor cycle part.—Harris, Midland Road, Derby.

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8 h.p. Two-cylinder Two-seater, side doors, sloping back, enclosed radiators, good tyres, new lamps, gears want renewing; bargain, £35.—Godber, 12, Perham Road, West Kensington.

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ROVER Cars, 6 h.p., two-seaters, fast, silent, reliable, wonderful hill-climbers, low up-keep, smart, up-to-date; particulars and trials free; motor cycles and tricars taken in part payment; deferred payments by arrangement; price £135.—Davis and Son, Moseley, Birmingham.

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TWO-SPEED Gear, first-class condition, for 3½ h.p. Minerva.—H. Schofield, Retford.

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WANTED, 100 motor cycles for shipment, must be very cheap; any condition. — Box 9,494, *The Motor Cycle* Offices, Coventry.

WANTED, spring forks attachment, Chater-Lea, or similar make, for girder head; cheap.—C. Tucker, 58, Myrtle Road, Acton, W.

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WANTED, Motor Bike, light, low, vertical, in exchange for "Chicago" typewriter, duplicator, etc., and cash. — Particulars (Scotland) 9,484, *The Motor Cycle* Offices, Coventry.

WANTED, 6 h.p. Twin Jap, in No. 6 Chater-Lea frame and sidecar; cheap for spot cash.—Robson, 11a, Blomfield Street, E.C.

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Now, that is just what the **PREMIER TWO-SPEED GEAR** with **ROC (LICENSED) INTERNAL EXPANDING CLUTCH** does. And the Gear is so well designed and strongly made that it takes the drive of the most powerful machines—9 h.p. Bat, for instance. Have a **PREMIER GEAR** with **INTERNAL EXPANDING CLUTCH** on your new machine. (We can supply without delay.) Or let us know what your present machine is, and we will quote you for conversion.

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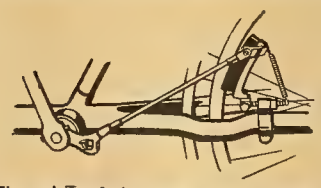

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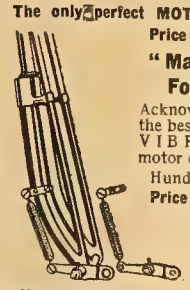

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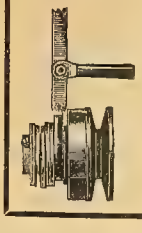

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Apply REG. SAMSON,

Ladywood Road, Birmingham.

WANTED.

WANTED, 4 h.p. Roc, 3½ h.p. Vindec, or other good make, spring forks, magneto, must be guaranteed; cheap.—Full particulars, No. 9,493, *The Motor Cycle* Offices, Coventry.

WANTED, two motor cycles, or one and cash, for C.I.E. tricar, 5 h.p. twin, two-speed Phelon and Moore, coach-built, new condition; sell cheap.—Bradshaw, Optician, Fishergate, Preston.

WANTED, motor cycle, low built; exchange 15 guinea Edison Bell concert phonograph, with 40 records, also good double-barrel gun, in leather case, cost 15 guineas.—Rennie, Abbeywood.

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WANTED, motor cycle or tricar, in exchange for new furniture, any description (valued wholesale), direct from works.—Furniture Manufacturer, 3-5, New Norfolk Street, Shoreditch, London.

SIDECAR, compensating, 26in. wheel, without tyre, N.S.U. two-speed gear, exchange with cash; 2½in. lathe, with tools, 28s.; 26 by 2 new Continental cover, 15s.; leather suit, 16s.; half-plate stand camera, 15s.—J. Jordan, 25, Derby Street, Burton-on-Trent.

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THE Best Silencer Made is Aldington's patent Silent, from 10s. 6d.—Below.

THE Ball Bearing Ideal Fan will cool any engine; 28s. 6d.—Below.

MY Footrests, reduced to 6s. 6d., are a luxury, spring rests, 17s. 6d.—Aldington, 59, Haydon's Park Road, Wimbledon.

WHIPCORD Breeches, latest cut; 10s. 6d. — J. C. Savage, 119, Donegall Street, Belfast.

2 h.p. Lightweight Engine, wants repairing; £3, or useful exchange.—Ben Short, Portslade.

FOR Sale, Eldorado V Belts, price, ⅜in., 9d.; ½in., 10½d.; ⅝in., 1s.; 1in., 1s. 2d.—Pollin, belt maker, Spalding.

CLARENDON Sets, including frame, engine rims, belt rim; £5 15s.—Wauchope's, 9, Shoe Lane, London.

ENGINES, air or water-cooled, 3, 6, or 9 h.p.; write for particulars.—Advance Motors, Ltd., Northampton.

WHIPCORD Cycling Breeches, latest cut; 10s. 6d.; write for patterns. —Booth, tailor, Longton, Staffs.

FARRAR'S Quadrant Loop Frames for vertical engines; 32s. 6d. each, including front forks and handle-bar.

FARRAR'S 1907 Quadrant Frames, 20½in. high, suit any engine; 50s., including front forks and handle-bar.

COW-VOICED Double twist horns, large size, terrific noise; usually 8s. 6d., my price 5s. 10d.—Farrar.

FARRAR'S Motor Handle-bars, 20in. long, 4s. 9d.; Lycett's patent Lightning stand, 4s. 9d. pair.

FARRAR'S Beautifully Enamelled Mudguards, 2s. 6d. pair; massive plated horns, terrific noise, 3s. 9d.

FARRAR'S Pocket Voltmeters, 4s., usually 12s. 6d.; sparking plugs, 10d.; magneto plugs, 1s. 6d.

FARRAR is open to buy, sell, or exchange anything in the motor line.

FARRAR wants sidecars in exchange for new £10 10s. gents' cycles, guaranteed 12 months.

FARRAR. — Send for my price list, pounds saved; sole agent Premier accumulators. — Farrar, Square Road, Halifax.

CHARGING Battery (Fullers four-cell), zinc lifter fitted; sacrifice 20s.—Johnson, 61, Hampton Road, Handsworth.

In answering any advertisement on this page it is desirable that you mention "The Motor Cycle."

MISCELLANEOUS.

BOOTH.—Brand new motor cycle, ready for tyres and engine, low built, suit 4 h.p. engine; £6 5s.

BOOTH.—Motor cycle (loop frame), with tyres, brakes, ready for engine; £5.

BOOTH.—New motor cycle, ready for twin engine and tyres, low built; £6 5s.

BOOTH.—Mudguards, with stays and screws, enamelled, 3in. 2s. 11d., 4in. 3s. 6d. pair.

BOOTH.—Silent silencers, suit engines to 5 h.p., no back pressure, very efficient; 3s. 3d.

BOOTH.—Fifty pairs Xl'all spring forks, latest 1908 pattern, fit any machine.

BOOTH.—Massive horns, deep tone, 3s. 9d.; double twist horns, terrible noise 4s. 9d.

BOOTH. — Voltmeters, watch pattern, usually 9s. 6d., 4s. 1d.; mica plugs, 1s. 1d.; De Dion pattern plugs, 1s. 1d.

BOOTH.—High tension wire, rubber insulation, 1s. 1d. yard; low tension, 5d. yard.

BOOTH.—Motor handle-bars, 20in. long, 4s. 9d. and 5s. 6d.; Price's patent stands, 5s. 11d., new.

BOOTH.—All sizes of genuine Stanley-Dermatine belting and fasteners; send for prices.

BOOTH. — Attachment for connecting motor cycle to tricycle, tyres like new; £4.

BOOTH.—Engines: New 6 h.p. twin Antoine, £8 5s.; 4 h.p. Antoine, £6 5s.

BOOTH.—Engines: New 5 h.p. water-cooled, for tricar, M.O.V.; £8 5s.; best maker.

BOOTH. — Engines: 4 h.p. Roc, fitted with magneto, nearly new, M.O.V.; £9 5s.

BOOTH.—Engines: 2 h.p. Universal, £1 15s.; 3½ h.p. Buchet, £3 15s.; 2¾ h.p. M.M.C., £3.

BOOTH.—Engines: 2¾ h.p. Minerva, £4 5s.; 2½ h.p. Buchet, £2 5s.; smaller engines taken part payment.

BOOTH.—Pair of new motor pedals, rubber, 4½in. wide, ball bearings; 4s. 6d.

BOOTH. — Hellior searchlight lamps, separate or fixed generators, detachable magnifying mirror lens, 12s. each, approval, sold elsewhere 25s.

BOOTH.—Gas lamps, separate generators, powerful light, 5s. 3d.; nearly new twin Invicta trembler coil, 16s. 6d.

BOOTH. — Large leather toolbags pockets for everything, best quality, not cardboard; 5s. 6d.

BOOTH.—Six accumulators, four volts, celluloid cases, require repair; 10s. the lot.

BOOTH.—Please note our address, Coronet Works, Wade Street, Halifax. Telephone, 198Y.

CHEAP Motor Cycle Houses; catalogue sent free.—Portable Building Company, Felsham Road, Putney, London.

3½ h.p. Water-cooled Fafnir Cylinder, nearly new, with nickelled unions; £2.—Werry, 200, Old Street, London, E.C.

YOUR New Mount is incomplete without the Advance adjustable pulley; £1.—Advance Motor Mfg. Co., Ltd., Northampton.

EVERYTHING Made in cycle tanks except a fortune. Write for prices. —A. Phillips, 2, Strathnairn Street, Bermondsey.

MAYFAIR Accumulators, guaranteed; 15 a.h., 10s. 6d.; 20 a.h., 17s. 6d.; 40 a.h., 30s. — Fellows, Hertford Street, Mayfair.

OSBORNE Four-speed and Free Engine Pulley, new 1907 pattern, unused; £4. — Cooke, Oxford Street, Barrow-in-Furness.

Stanley Dermatine Motor Belt.

The Belt that carried everything before it in 1907 Season, and opens the 1908 Season by winning

THE FIRST TRIAL OF THE SEASON.

Miss Muriel Hind, in the Auto Cycle Trial on Saturday, Jan. 25th, made fastest time on the Hill Test, using **STANLEY DERMATINE BELT.**

The Dermatine Belt is the original British rubber and canvas belt, with transverse grooves, and is far ahead of any other make belt. **Every Belt stamped "STANLEY DERMATINE."**

BEWARE OF IMITATIONS.

The standard belt that is adopted by all leading manufacturers.

HUNDREDS OF TESTIMONIALS.

NOTE THE PRICES.

⅝in.	¾in.	7in.	1in.	
1/2	1/4	1/8	1/11	per ft.

POST FREE.

THE STANLEY DETACHABLE MOTOR BELT FASTENER.

With unbreakable Terry's hook. Guaranteed. (Made under Simplex Patent.) In sizes, ⅝in., ¾in., 7in., 1in., 1/- each. Wholesale and Retail.

THE STANLEY DERMATINE MOTOR BELT CO., 32, LONDON ROAD, BROMLEY, KENT.
Stanley Webb, Manager.

LOSS of POWER

There's nothing your motor would prefer to see more than a precipice to climb after reboring and fitting new piston by Gradior Machine Co., Compression Specialists, Stafford. Fit of piston is guaranteed to 4/1000 ins., and bears 13 stones on the pedal.

WRITE FOR LIST.

THE GRIP MOTOR CYCLE HANDLE.

Black Buffalo Horn Handle, 2/6 per pair post free, with solution for fixing. Give size of handle-bar. Trade terms on application. **HILL BROS.,** 32, Broom Close, Sheffield.

MISCELLANEOUS.

SEVERAL Double-cylinder Coils, H.S. trembler, best English; to clear accept 22s. each.—Aylaston Motor Works, Derby.

BELTING.—⅝in., 7½d. foot; ¾in., 8½d. foot; ⅞in., 9½d. foot; 1in., 10½d. foot, by Pollin, of Spalding. — Wauchope's, 9, Shoe Lane, London.

INCLINED Frame, for 26 wheels, also 1¾ Mayes; exchange for pair 28 by 2in. beaded covers.—Partington, 199, Preston Road, Standish.

LONGUEMARE Carburetter, suit 6-12 h.p. engine, 10s.; coach-built forecar seat, 12s. — Stevens, 4, Goldhawk Mews, Shepherd's Bush.

MABON Clutch, complete, only run 20 miles, suitable for Triumph, with sidecar; 45s., or nearest offer.—B. Cumberland, The Lynchet, Luton.

500 Pairs Military Gauntlet Gloves, all leather, at 2s. 6d. a pair; also military riding breeches at 4s. 6d.—Anscomb, 14, London Road, London, S.E.

BASSEE-MICHEL Trembler Coil, good as new, 10s.; Longuemare carburetter, suit 2¾ h.p. engine, 10s.—Fairhead, builder, Melville Road, Walthamstow.

CARBIDE, guaranteed, 4, 7, 14 lb. tins, 3½d. per lb.; should be ordered in 21 lb. lots to save carriage.—Stansell and Son, Acetylene Gas Engineers, Taunton.

ENGINES.—2 h.p. Clarendon, new, £3; 2¾ h.p. M.M.C., variable pulley, £4; 3 h.p. Fafnir, £4 10s.; 6 h.p. water-cooled Aster, £10 10s.—Wauchope's, 9, Shoe Lane, London, E.C.

HALIFAX.—"Perfection" belting, new principle, ⅝in., 10d.; ¾in., 1s.; ⅞in., 1s. 2d.; 1in., 1s. 4d. per foot; 3s. allowed for your old belt to popularise.—16, Westgate, Halifax.

FRONT Wheel, new, 26 by 2, 8s.; Dermatine, ⅞in., 6s. 6d.; another, ⅞in., 6s. 6d.; twin Rex pulley, new, 5s.; 1905 Rex pulley, piston rings, 7s. — Tuley, Northfleet, Kent.

WAUCHOPE'S arrange Exchanges of all descriptions. Liberal allowance for second-hand machines in part payment for new models. — Wauchope's, 9, Shoe Lane, London.

ALVASTON Works, Derby. — 7 h.p. marine motor, fitted with paraffin carburetter, brand new, inclusive of starting handle and silencer, guaranteed perfect order; accept £9 10s.

ALVASTON Works, Derby.—Brand new Harvey-Frost workshop type vulcaniser, with extra steam mandrel, perfect, guaranteed; cost nearly £10, accept £5 10s., immediate cash.

ONE Pair 35s. Side Lamps, 20s.; one 35s. motor bike headlight, 25s.; one 25s. ditto, 18s.; one generator, 4s.; all new; double-cylinder plain coil, 9s.—8 Crieff Road, Wandsworth.

READERS Having Photographic Apparatus for sale should advertise in "Photography" Emporium, ½d. per word, minimum 6d. — Address, "Photography" Offices, Coventry.

DE DION Parts.—2¾ h.p. cylinder head complete, flywheels, timing wheels cover, contact breaker, ⅞in. pulley, 30s. motor cycle frame, suit twin, 35s.—1, Brunswick Street, Walthamstow.

ENGINES.—5 h.p. twin Kerry, £7 15s. 2½ h.p. De Dion, £2 17s. 6d.; 2¾ h.p. M.M.C., £4; ditto pattern, £2 10s.; 2 h.p. Jap, £5; 6 h.p. w.c. Aster, perfect £10 10s.—128, High Road, Tottenham.

ITALIAN Headlight, by Zanardini, Milan, 20s.; leather jacket, 15s.; dust coat, 5s.; 1905 Rex valve, 2s. 6d.; quantity of various spares; stamp, reply.—Penny, 119, Belvedere Road, Burton-on-Trent.

MOTOR and Cycle Agents should read "The Cycle and Motor Trades' Review." Specimen copy post free on receipt of trade card. — "The Cycle and Motor Trades' Review" Offices, Coventry.

FOR Sale, motor boat, 5 h.p. Mors, twin cylinder engine, guaranteed good order, and reliable, painted white, up-to-date, and fast; £32; consider exchange. —Whitehouse, 32, Reform Street, Dundee.

THE MOTOR CYCLE

Vol. 6. No. 252 CONTENTS. April 1, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart. Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

The Motor Cyclists' Ideal.

DOUBTLESS many readers who filled up the postal form circulated with *The Motor Cycle* of March 18th will be anxiously awaiting our announcement of the result. We must, however, ask them to be tient yet awhile. The query form is not an linary one with simple questions. If it were, it uld be quite possible to hand over the whole of the olies, which, by the way, are extremely numerous, a clerical staff to sort and tabulate, and the result uld be known in a few days. Unfortunately, no linary clerical staff could deal with these forms. ey require practical knowledge of the motor cycle, d can, therefore, only be dealt with by our own itorial staff, who naturally can only devote a certain nount of time daily to the compilation of this table— able, we may say, which will be of more than ordinary erest when it is published. We can only say at the oment that it may be several weeks before the tabu- ed list of replies can be published, but we hope next ek to refer to some of the more interesting replies.

The A.C.U. Council Meeting.

THE A.C.U. council meeting has come and gone, and all will admit that it was a most successful meeting, and one which should be of considerable assistance in securing the affiliation of all provincial clubs. Personally, we regret that Mr. H. Hall, the president of the Sheffield and Hallamire M.C.C.—a club with over 100 members—was t elected on the committee. Mr. Hall has done a st amount of good work for motor cyclists, and, hough perhaps inclined to be over impulsive, we have proof of his good work, and we feel sure that if a place had been found for him on the committee his aid would have proved very valuable.

We were very pleased to notice that the majority of the suggestions which have been made in *The Motor Cycle* editorial columns have been adopted, notably a perambulating council, the affiliation of Scottish riders, a centre scheme on the lines of the N.C.U. centres, etc. Practically the only suggestion we have made which was vetoed by the committee was the proposition for a scheme for unattached riders. We can only conjecture that the lack of "ayes" for such an important proposition was caused by the presence of a large number of delegates from provincial clubs, who perhaps thought that any scheme for unattached riders would affect their local membership. Correspondence in *The Motor Cycle* proves that there are riders who do not wish to join a club, but who would be willing to pay a moderate subscription to a body like the A.C.U. if allowed to participate in certain advantages.

Mr. Robert Todd's remarks with regard to taxation were not particularly encouraging; nevertheless, we hope Mr. Asquith will give motor cyclists his best consideration. We are already taxed considerably more, in proportion, than any other class of motorist, and it would be distinctly unfair to raise the present rates. We still have the copy of letter on taxation which the Sheffield and Hallamshire M.C.C. sent to Parliamentary representatives in Sheffield and district. Several clubs have applied for a copy of it and sent it to their representatives.

The centre scheme should work well. A system of decentralisation is part of the R.A.C. scheme; it should therefore receive every support at the hands of the A.C.U. Once the provincial clubs are working enthusiastically with the head body success is assured.

CHAIN v. BELT.

By B. H. DAVIES.

THIS ancient controversy bids fair to be entirely re-opened by the call for a motor bicycle suitable for use with a sidecar. We had all regarded it as long since dead and buried, and to see such widely divergent opinions furiously restated must be very puzzling to the young motor cyclist, intent upon the specification of his first or second machine. With the Editor's permission I therefore propose to sum up the conclusions of past history on the matter.

Whatever may be the preferences of a scanty handful of individuals, one has only to peruse "*The Motor Cycle* Buyers' Guide" to see that for motor bicycle purposes, apart from the haulage of a passenger, the belt has altogether ousted the chain, and I may add that this is by the united verdict of both manufacturers and users. Here and there one discovers an isolated individual who is enthusiastically loyal to the chain drive; but the majority of riders will have nothing whatever to do with it at any price, and most makers dare not trust their machines to that large percentage of duffers who figure on their order books with any other drive than the belt.

Spare Belts need not be Carried.

Time was when you could search the market without finding a single machine possessing a satisfactory belt drive; I can remember the days when I regularly took two complete spare belts on a long tour, whereas to-day I take no spare belt, not even a few inches of belting, and perhaps not so much as a spare fastener; yet even in those days the chain drive was fighting for its existence. To-day, when the belt drive is perfected, the chain is practically dead, and we are not surprised to find it so. It survives on a few machines, and those makers who have stuck to it through the last five or six years turn out thoroughly satisfactory examples of it. But as a rule it will be seen that such makers have been compelled to stick to it, through some feature of their machine (such as a two-speed gear) forbidding belt transmission altogether; and it is a fair inference that, if they could have adopted the belt drive without sacrificing the notable feature of their own particular machine, they would probably have done so.

The Chain Drive for Passenger Work.

The natural conclusion, therefore, is that, given two equally skilled and careful riders, plus two machines of equal merit in design and workmanship, one belt-driven and one chain-driven, both men will have an equally pleasant season; but that for indiscriminate sale or use the belt is infinitely safer. We may therefore put the chain drive out of court, except for special purposes, such as a two-speed gear or passenger work.

I am almost equally emphatic in putting the belt out of court for work with passenger attachments, and especially for two-speeded passenger work. A *huge* belt will stand the double strain of extra load, of a low gear, of the sudden jerking of the load back on to the engine after a gear change on a hill, but it will not stand it so well as a chain will stand it, and then pulleys and belts large enough for the purpose are not made. A double belt might stand it, but the two or three firms who tried this plan have abandoned it. The Whittle belt stands it better than any other bel I have tried, but I do not consider it equal to the chain

The chain has two huge advantages for passenge work:

(1.) It cannot possibly slip.

(2.) If attended to at the start of a run it nee never be touched till the run is over, whereas a bel very, very seldom gets through one hundred mile with a passenger without stretching

Further than this, we find a grave defect whic impairs the safety of a chain as used on a moto bicycle solo, and which does not exist when a passeng attachment is added. On a solo motor bicycle, if th engine jams, or if the chain comes off, the rear whe is generally locked, and the rider sustains a nasty fal When a passenger attachment, either fore or sidecar, added, the combination will give a big swerve if the re wheel is locked in either of these ways, but there wi be no overturning, and no real danger of person damage.

Weight and Chain Transmission.

A second defect of the chain in solo work is al removed when the chain is applied to passenger wor Lightness is a prime consideration for solo worl weight is saved wherever possible in frame, engine, a transmission. Additional weight is necessary in these parts when a chain is employed, but extra weig matters very little in a passenger combination, whi is started by a handle and a clutch, and possesses emergency gear.

For passenger work, therefore, the chain adds t great advantages, reliability and efficiency, each which can easily be procured by the belt in solo wor but cannot be procured so easily in passenger work.

Similarly, when applied to passenger work, the cha loses two of its main drawbacks in solo work, name danger and weight.

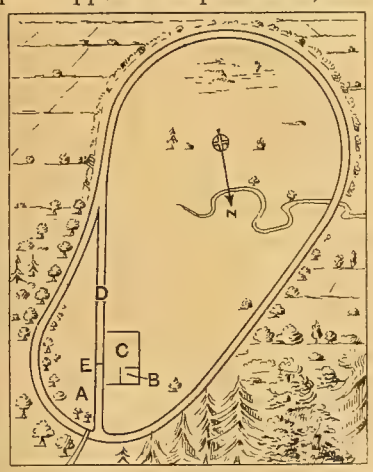
Its other main drawback, that of requiring freque and messy attention, belongs in a greater degree to t belt when applied to passenger work, just as in so work it applied more particularly to the chain.

And so we may venture to say that a fair conclusi is, the chain for passenger work, wherever possible, a the belt for solo work, wherever possible. And if t same bicycle be used for both passenger and solo wo my vote would undoubtedly go to the chain.

We have received a sample of the latest Ingers watch for attaching to the handle-bar of motor cycl which has a very novel feature. In the centre of t dial there are six concentric circles. Within the inn most circle are printed the months of the year, and the five outer ones will be found the times for lighti lamps on the 1st, 8th, 15th, 22nd, and 29th of ea month. Everyone will agree that the combination of timepiece and lamp lighting table on one dial is a m useful novelty. The handle-bar clip is neat and stron and the watch cannot be jolted out. The price of t watch and clip is most moderate, and one of them said to have been used on a motor cycle for 12,0 miles without injury. Price and further particula can be obtained from R. H. Ingersoll and Bro Audery House, Ely Place, Holborn Circus, Londo E.C.

Motor Cycles on Brooklands Track.

OF late a good deal more has been heard of Brooklands in connection with motor cycles, and such a state of affairs is distinctly refreshing, especially when it has to be recorded that Mr. E. De Rodakowski, the secretary of the Brooklands Club, is one of the latest converts to motor cycling. And this is how it came about. One day last week two or three enthusiastic members of the Auto Cycle Union, elated at the prospect of a race for motor cycles on Brooklands, which is to be held probably on Easter Saturday, decided to take two or three machines down to the track and find out a few facts concerning it. Previously the only data on which they had to go were the reports of two gallant naval officers, who drove round till their machines became almost red hot, and the private match between Messrs. Bickford and McMinnies, which has been described recently in these pages. First of all it is necessary to glance at a bird's eye view of the course, to which we refer our readers. The usual procedure for cars is to start on the stretch D at a point opposite the pavilion B, and then continue round the outer circle, when after the agreed number of laps have been covered they finish along the straight stretch D. The grand stand A is on a hill behind which the course passes, and while the competitors are on this section they are necessarily out of sight. It was with a view to obviate this that Messrs. Straight, Reynolds, Wells, H. Collier, sen., and H. A. Collier went down to the famous motordrome last week. It was thought (and rightly so, too) that if the motor cycles could be kept within the inner circle the public would be better able to appreciate their performances. To test the practicability of the idea, Wells and Reynolds, on twin-cylinder Vindecs, started at the top of the straight, and careered at full tilt down it. Wells travelled at a goodly speed, took the corner leading to the main track, went high up the banking, and almost landed in a patch of newly laid cement some distance farther on (the track is now under repair), while Reynolds was more cautious, since he slowed at the corner. Both then returned, and announced that at the speed at which they had been going the corner was impossible, as there was no banking at the very spot at which it was most wanted. This does not mean that the track is badly designed, as it was being used then in a manner the reverse to which it was intended. The two riders were not, however, to be daunted, and each separately had another try, but with no better success. Collier, unfortunately, could not make the attempt, as his Matchless racer was not in such good form as it might have been.



A. Grand stand.
B. Pavilion.
C. Competitors' enclosure.
D. Finishing and starting straight.
E. Finishing line.

Mr. Roadkowski Delighted with Motor Cycles.

In the interval Mr. Rodakowski was persuaded to try Reynolds's light roadster Vindec. It was his first ride on a motor bicycle, and in this case we have an absolute novice initiated into the pastime on a fast 5 h.p. twin! On his return he expressed himself delighted with the machine, and stated how much surprised he was at the total absence of engine vibration and the easy manner in which the machine was controlled. Various tests followed, which resulted in the decision that the machines should be started at a point almost opposite the pavilion, as it had been found that they then had not time to get up enough speed to be travelling at a dangerous pace when the corner was reached. Through the courtesy of Mr. A. G. Reynolds we were able to try the track for ourselves, or at least that portion of it which was available. Riding on it was a delightful experience; there was a sense of unfettered freedom, which can be felt nowhere else, even on a straight deserted road in the Fen country. The Vindec pulled magnificently, but was under-geared for the work, and so never slowed at all up the 1 in 30 gradient behind the hill. Along this section there is no need to take the banking even at a speed of nearly forty-eight miles an hour, and both here and along the straight the surface is practically perfect. While witnessing car races the worst bumps seem to occur high up the banking beyond the foot bridge, but at a point not reached until over sixty miles an hour is obtained. On the portion of the track available at any rate the surface is excellent, and if any car driver can complain of this section it simply means that on a sprung vehicle he is unprepared for violent road shocks, while the motor cycle rider expects them, and knows what to do when they occur. Collier rides on a piece of cardboard attached to the carrier, but keeps almost the whole weight of his body on the footrests, thus avoiding the effect of all inequalities of the surface, and at the same time having his machine under perfect control. The Easter meeting will be looked to with interest by motor cyclists. Motor bicycles have never before competed on what is, humanly speaking, a perfectly safe track, so that what the result of the races will be may only be conjectured.

The London agents for Riley tricars, the Service Co., 292, High Holborn, W.C., are making adequate arrangements to give trials of these machines at short notice from the above address.

We gave two illustrations and a description of work accomplished in the repair of cracked water jackets by Lea and Son, Runcorn, in our issue of April 3rd, 1907. At that date the repaired cylinders showed a slightly raised appearance where the fracture had been, but Lea and Son inform us that further improvements have since been introduced, so that the work is now absolutely smooth with the remainder of the casting, and it is practically impossible to locate the repair. It should, however, be borne in mind that repairs can not be made to cylinders broken on the line of the piston's travel.

OCCASIONAL COMMENTS

By "IXION."

Lightweights and the End-to-end.

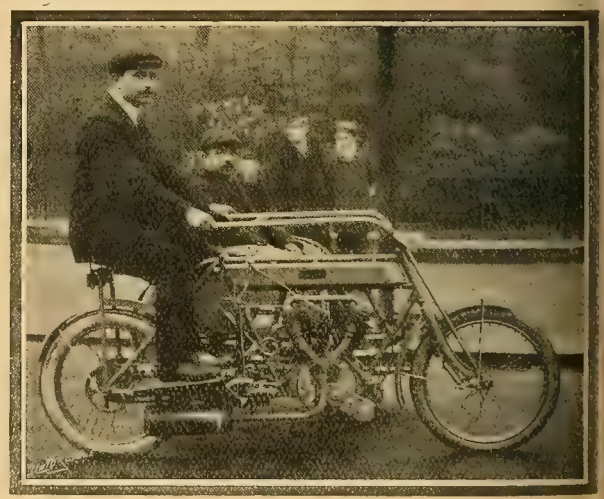
It is a little unfortunate that during the first year of the lightweight boom the A.C.U. trial should be from End-to-end. One of the defects of a very low powered lightweight is its incapacity to make fast running against a strong head wind, and there are several sections of the Scotch route, notably from Ballinluig to Cockburn Cottage at the summit of the Grampians, where the gradient and surface will be heavily against the competing machines, and in all probability a sturdy head wind will be encountered. Lightweight machines cannot hope to maintain the official minimum of 15 m.p.h. should the conditions be unfavourable over these heavy sections. A suggestion has been made to me by a lightweight enthusiast, who desires to ride his 80 lb. machine in the great trial of the year, that the more northerly days' riding should be arranged as follows: All lightweight machines to be started first, and the start to be as early as possible; if strong head winds are encountered, the lightweights to be set a minimum of 12 m.p.h. through all or any of that day's controls, at the discretion of the judges. He unkindly adds that, if, as per previous End-to-end, the official car is in the rear, it would be easy for the judges to wire ahead to one of the section officials. It would be interesting to have the opinion of other lightweight enthusiasts as to whether this type of machine needs consideration of this sort in the trial or not. I am aware the Motosacoche held its own last year, but on English roads in the more southerly counties and on a circular tour, the wind is not so serious a factor. The End-to-end trial has now been fixed for July 13th-18th.

Worn Chains.

A very valuable wrinkle appeared in a letter from Dr. Gaskell, page 206, March 11th. He described how nothing would induce the chain of his small tricar to remain on the sprockets unless it was run so tight that considerable friction was set up. He finally solved the difficulty by purchasing a new chain; this would keep on the teeth at quite a moderate tension, and the failure of the old one was thus indicated as being due to loss of pitch. The links were riding on the top of the teeth, and so an infinitesimal amount of sag or sway was sufficient to throw it off. Some of the early tricars were fitted with chains far too light for their work, and as the chains were totally unprotected and the machine used in all sorts of weather, new chains very soon become necessary. The sprockets of these tricars are usually peculiar, owing to the eccentricities of the gearbox design, and so riders, having discovered their chains are too weak, abandon the idea of fitting stronger ones, because they cannot obtain heavier sprockets. Not every rider knows that two or three different sizes of chain can be interchanged on the same sprockets. Consequently any driver of one of these machines suffering from chain troubles would do well to send one of his sprockets to the chain makers, and ask them to forward him the strongest chain which can be run on it. A friend of mine recently transformed a very tiresome little tricar into quite a serviceable vehicle by fitting a heavy chain on the light sprockets provided. That is six months ago, and he has had no trouble since. It is not mechanical, but it works.

Strange Experiences with Gudgeon Pin Screws.

Anyone who has a long experience of the whimisicalities of a motor bicycle is well aware it is impossible to prophesy what it will do next; but every now and then there arises a rider equipped with that little knowledge which is such a dangerous thing. A correspondent has just written denouncing my paragraph on page 216 describing how a gudgeon pin set screw fell out of the piston, and was ejected through the cylinder walls at the bottom of the piston's stroke. He describes this paragraph as an attempt to bamboozle my readers, and consequently I publish in self-defence the names of two riders who have undergone this experience. When I wrote that paragraph I had only one name before me—Mr. V. G. Whitelaw, the Midland Counties hockey player. The day after the paragraph appeared Mr. Le Pine Jackson wrote to tell me the same thing had happened to him with another make of engine. My incredulous correspondent will probably now have the courtesy to withdraw his very impertinent remarks. His incredulity is evidently based on an inexcusable blunder of his own, for I think he imagines the gudgeon pin screw was described as emerging above the piston. Nothing in my paragraph suggested that. The pistons in both cases were clearly short ones, and at the top of their strokes when the screw was driven through the cylinder walls at points near the bottom of the strokes.



A powerful passenger machine, referred to by Chater Lea, Ltd., in letter No. 3157, issue of March 4th. The engine is a 9 h.p. Jap with magneto ignition. The drive is by chain through a 9in. clutch and a two speed gear box. The engine is placed higher than usual on account of the bad roads in South Africa, where the machine will be used. The sidecar is built of standard Chater Lea fittings using slightly heavier gauge tubing. Other details will be observed by a close inspection of the illustration.

The Selection of Gear Ratio.

By A. G. LEE, B.Sc. *(Concluded from page 232.)*

Fig. 3 shows the total horse-power required on gradient of 1 in 7¼ for two machines with W =

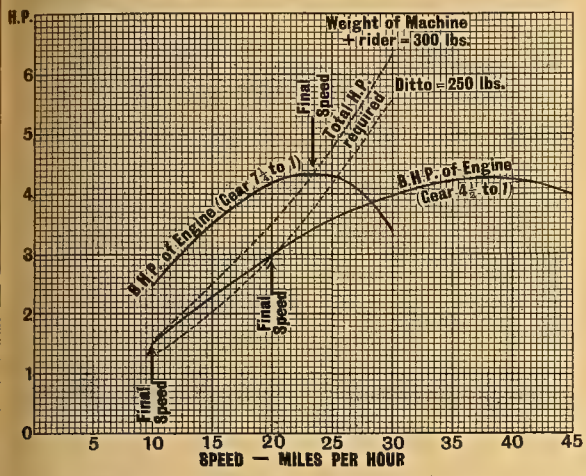

H.P.
Weight of Machine + rider = 300 lbs.
Ditto = 250 lbs.
Final Speed
Total H.P. required
B.H.P. of Engine (Gear 7¼ to 1)
B.H.P. of Engine (Gear 4½ to 1)
Final Speed
Final Speed
SPEED — MILES PER HOUR

Fig. 3. Horse-power required on gradient 1 in 7¼ for machines of different total weights.

00 lbs. and 250 lbs. respectively. The same engine taken for both machines, and the brake horse-power shown with a gear of 4½ to 1, and also with a ear of 7¼ to 1.

The influence of the weight of the rider is shown by ie greater horse-power required when W = 300 lbs. he final speeds are respectively ten and twenty miles er hour when both machines have a 4½ to 1 gear, ut if the 300 lbs. machine be given a gear of 7¼ o 1 it will attain a final speed of twenty-three miles er hour.

'he Point at which the Change of Gear should take place.

It will be noticed that the brake horse-power with ie two gear ratios is equal when the speed is at venty-eight miles per hour. Below this speed there

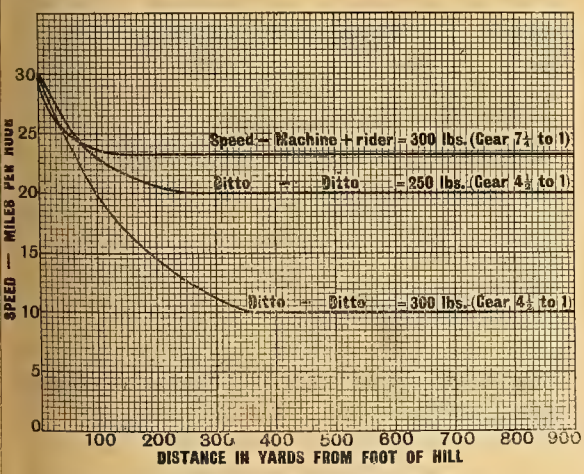

SPEED — MILES PER HOUR
Speed — Machine + rider = 300 lbs. (Gear 7¼ to 1)
Ditto — Ditto = 250 lbs. (Gear 4½ to 1)
Ditto — Ditto = 300 lbs. (Gear 4½ to 1)
DISTANCE IN YARDS FROM FOOT OF HILL

Fig. 4. Speed at various distances up gradient of 1 in 7¼.

s more power on the second gear. This, therefore, s the point where the gear should be changed.

Fig. 4 gives the speeds at various points on a hill with gradient 1 in 7¼. Here the three machines start with an initial speed of thirty miles per hour at the bottom of the hill.

The kinetic energy of the machine plus rider is

$$\frac{W}{g}$$

therefore ½— (30 × 1.467)² foot lbs. where g = 32.2.

This is equal to 9,000 foot lbs. in the case of the 300 lbs. machine.

As the speed drops the kinetic energy is given up, and provides the balance of horse-power required at any given instant.

One example of the calculation of the rate of drop in speed will suffice to demonstrate the method. Referring to the curve (fig. 3), it is found that between thirty and twenty-eight miles per hour the mean horse-power required for the 300 lbs. machine in excess of that available is 2.05. This has to be made up by the kinetic energy given up by the machine.

2.05 h.p. = 2.05 × 550 = 1,125 foot lbs. per second.

Between thirty and twenty-eight miles per hour there is a loss of kinetic energy of 1,160 foot lbs. This will, therefore, suffice to provide 2.05 h.p. for $\frac{1,160}{1,125}$ = 1.03 seconds.

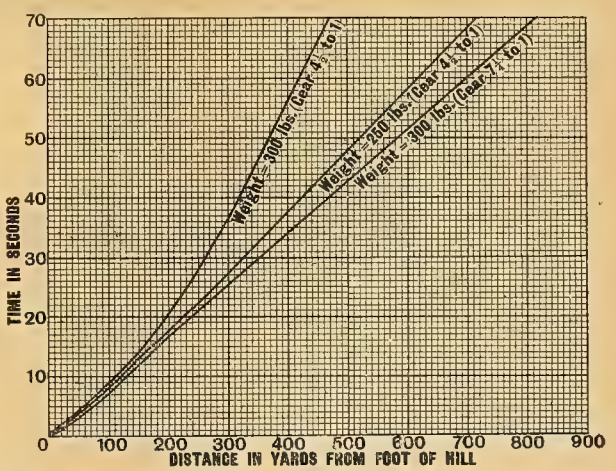

TIME IN SECONDS
Weight = 300 lbs. (Gear 4½ to 1)
Weight = 250 lbs. (Gear 4½ to 1)
Weight = 300 lbs. (Gear 7¼ to 1)
DISTANCE IN YARDS FROM FOOT OF HILL

Fig. 5. Time in seconds taken to reach various distances up hill of 1 in 7¼.

The distance travelled in this time at the mean speed of the interval—twenty-nine miles per hour—is 14.6 yards, so that in 14.6 yards the speed has fallen from thirty to twenty-eight miles per hour.

Similar calculations have determined the remainder of the curves.

It will be noticed that the speed with the 7¼ gear drops more rapidly at first than that of the other machines, but attains a higher final speed.

Fig. 5 gives the time in seconds of the same three machines at various points up the same hill.

The initial impetus is equivalent to a start of 120 yards in the case of the 300 lbs. machine (gear 4½ to 1). as it allows it to develop a larger horse-power than

The Selection of Gear Ratio.—

its normal for about 360 yards up the hill, when it settles down to its steady ten miles per hour.

The initial impetus with the 300 lbs. machine (gear 7¼ to 1) is only equivalent to a start of twenty yards.

It will thus be seen that the effect of an initial rush is much more important where the final speed of the machine on the hill is low and the length of the hill is short.

Empirical Formulæ for Choice of Gear Ratio.

We have seen above that to get the best results the gear should be altered for each particular gradient.

In practice, however, we are usually limited to a choice of two gears. These should be such that the highest gear is properly proportioned for running on the level and the low gear for a gradient of 1 in 10.

The high gear will then in most cases take all hills to 1 in 15 fairly comfortably, while the low gear may be trusted to look after the remainder.

For an ordinary tourist machine the follow formulæ may be taken as being simple and fairly tru worthy, provided the limits of their use are not stretc too widely.

For running on the level the best gear ratio is

$$\left(3 + \frac{6}{\text{b.h.p.}}\right) \text{ to } 1.$$

For running up hill (1 in 10) the best gear ratio

$$\left(3 + \frac{0.05\ W}{\text{b.h.p.}}\right) \text{ to } 1.$$

The Agricultural Hall Show.

A SECOND VISIT.

A SECOND inspection of the exhibits at Cordingley's Show revealed a few more items which will interest our readers. The two lightweight Werner motor bicycles shown by H. J. Harding, and referred to in our last issue, were to be seen in the early part of last week, and a few words about them will not be out of place. In appearance they possess the usual Werner features. The frame is built low, and the engine, which is of 1¼ h.p. (60 by 70), is placed in the usual Werner position. The carburetter is also on the familiar lines followed by this well-known firm, while the ignition is by a Dinin accumulator and plain coil, carried in a compartment in the tank. This machine is claimed to run one hundred miles on threequarters of a gallon of petrol, and to be a good hill-climber. It is also interesting to note that it competed with success in company with motor bicycles of higher horse-power in the 1907 Tour de France. Its weight is stated to be but 64 lbs.

In addition to the above complete machines, there were a Siemens and Schuckert electric delivery tricar, which was described and illustrated in *The Motor Cycle* of February 5th, page 102, shown by the Electric Vehicle Co., 1, Earl Street, Westminster, S.W. Also, a 3½ h.p. Rex and a 3½ h.p. Phänomen, the latter with a Bosch magneto placed in a horizontal position, behind the crank case and under the bottom bracket, well out of the way of mud and wet, shown on the Service Co.'s stand.

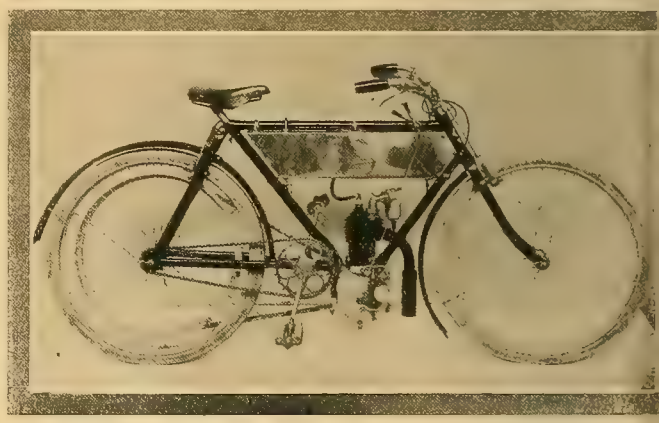
W. and R. Jacobs had also succeeded in unearthing one or two novelties, among which we may mention a small adjustable wrench of British manufacture, 2¾in. long—a very handy little tool for the manipulation of electrical fitments. A neat handle-bar switch made in two types, one for a magneto and the other for accumulators; and a trembler coil with the trembler set horizontally, which renders the platinum points very accessible. Another useful item to be seen on this stand was a neat terminal, fitted with a clip working on the principle of a patent glove fastener, so that it can be attached instantly to a cable.

Avery and Roberts, toolmakers, Liverpool, also showed some useful accessories. Their Auto patent ratchet spanner is certainly a useful tool, as are also their nut pliers, which serve for tightening up small nuts and also as wire cutters and ordinary nippers. They also exhibited what they term a "round the corner" screwdriver for getting at inaccessible screws, and a neat contact file in a small case, which also serves as a gauge to test the correct amount of break between the platinum points on a magneto contact-breaker.

Woodgates Bros., Tiverton, showed their celebrated Patch-quick patches and solution, which are claimed to repair punctures far more effectively than is the case with ordinary patches and solution, while it is interesting to note that they specially look after the interests of motor cyclists by making up small repair outfits which can be conveniently carried in the toolbag.

Hayes's Jack-no-skid anti-side-slip device has been on the market for several years, and has been greatly improved recently. Its weight has, we understand, been reduced fifty per cent., it is automatic in action, easily attached to machine, and has been reduced in price. Mr. Hayes, Ball's Pond Road, N., was showing the Jack-no-skid at Agricultural Hall last week.

We beg to remind our readers that with reference to Douglas motor bicycle sold by Cox, of West Norwood, H.



The new Werner Lightweight, bore and stroke 60 x 70 mm.

Rose, Limited, Frith Street, Shaftesbury Avenue, W., the London agents.

R. W. Corn, Ltd., aluminium and general founders, wh excellent repairs to castings of all kinds are so well know were showing at their usual stand near the main entrance

The illustration herewith is that of a section of the Th Spires non-skid motor cycle tyre. It is claimed that the s wings come into action directly the machine begins to and is inclined to skid. The firm responsible for the introduction of this tyre is the Coventry Rubber Co., Coventry, which company holds the opinion that what is wanted is a good wearing surface of rubber and ridges or wings at the side to prevent skidding when the machine leans out of the perpendicular. It will be noted that the tread of the tyre is quite plain. The usual flap is provided to cover the spoke heads and prevent damage to the inner tube. There is no doubt that it is an advantage if the non-skidding portion of a tyre is situated at a point where it cannot be worn away by friction caused by cont with the road, and we shall watch the developments of t tyre with considerable interest.

QUESTIONS & REPLIES

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Rubber Belts on Small Pulleys.

I have a lightweight machine geared 5¾ to 1 on which I use a rubber and canvas belt. Have had several of these, as they are continually giving way at the linkholes owing to the small diameter pulleys. It seems to me a more flexible belt is required. Kindly say what you advise?—J.B.F.

One of the most flexible leather belts is the Watawata, sold by O. and W. Ormerod, Ltd., Rochdale, and we should advise you to try a belt of this make on your machine.

Reducing Possibilities of Ignition Troubles.

I have bought a Trimo with 5-6 h.p. twin-cylinder air-cooled Peugeot engine, fitted with a make and break contact and trembler coils. There are eight platinum points to keep clean and adjusted, and the contact breaker is difficult to get at. Would a wipe contact make it easier to start and keep in order? Which do you consider the best wipe contact suitable for this engine?—F.G., W.C.

The best way out of the difficulty would be to have a plain coil and M.O.M. contact breaker, thus reducing the number of platinum points to six.

Hot Air Pipe and Non-skid Covers.

Is it necessary to have a tube from the exhaust box to the carburetter? My Wolf machine has not one (Longuemare carburetter), but goes splendidly. It consumes a lot of petrol, and I wonder if by fitting a tube it will make the petrol give off more vapour and so save petrol. I should like your opinion of a non-skid band. Which do you think is better, a rubber or a steel-studded one?—N.H., Cornwall.

If the machine runs really well it is better to leave things alone. Fitting up the hot air pipe from the exhaust box to the carburetter would only make matters worse as regards petrol consumption. It is only needed in very cold weather, and then only if the carburetter is set away from the engine. You might improve the consumption slightly by fitting an extra air inlet or enlarging the present one on the machine. It is difficult to say which is the better, rubber or steel. Time alone will show. If anything, we prefer the rubber; they certainly minimise the risk of sideslip, and are more comfortable than steel-studded tyres.

A Quiet Silencer Desired.

Please give me your opinion as to the best silencer for a 9 h.p. two-cylinder motor cycle (only one wanted). I have had the misfortune to come into too close proximity with the police, and I put it down to my machine being very noisy, and the untechnical brains of the police, as their theory is, "much noise great pace."—J.P.

We do not think such a thing exists as a "best" silencer. We should advise you to consult the following makers: Sharpe's Universal Patents, Ltd., Fleet House, Fleet Street, E.C., and G. Aldington, Haydon's Park Road, Wimbledon.

A Machine for Sidecar Work.

I want your candid opinion of the best clutch and speed combinations. If I order a Roc with a 6 h.p. J.A.P. engine would it be advisable to fit two-speed gear? In any case, I shall have a clutch, but have had no experience of gears, so perhaps you will inform me which is the best. I shall probably use a sidecar considerably. Do you prefer the epicyclic gear to the other kind?—F.C.P., Cambridge.

If you choose the machine mentioned in your letter and use a sidecar you will find a two-speed gear advisable. Epicyclic gears, if properly made, are quite satisfactory on motor bicycles. What other kind do you refer to? there are so many. Please send a list of gears, and we shall be pleased to place them in order of merit. See rule above.

Protection from Wet.

I am purchasing a 1908 3½ h.p. Triumph motor bicycle, and am desirous of obtaining some celluloid shields to protect the legs and body from the wet. Could you inform me where I should be able to secure these? I believe I have seen some reference in *The Motor Cycle* to shields of this kind. In addition to the shields for the legs I desire to obtain one to fix on the handle-bars to protect the body, similar to the screen used on motor cars.—G.H., Eastbourne.

Probably such shields as you desire can be made for you by Messrs. Bluemel and Bros., City Road, E.C. You had better, therefore, correspond with this firm. You could have a screen on the handle-bar, but to keep the legs and feet dry you could not improve on a wide leather splashguard, see *The Motor Cycle*, November 13th, 1907, page 904. With long overalls to fit over the ordinary trousers or breeches (fawn ones look smart), and with a waterproof coat and a sou'-wester, you could practically defy the elements.

Silencing Engine More Effectively.

My twin-cylinder air-cooled tricar is not so silent as I should wish, and I want to fit a more efficient silencer. I propose a 2in. diameter tube from the front cylinder to the back one, extending rearwards. There is plenty of room for a large silencer, so do you think I should gain anything by fitting a silencer for a 7 h.p. engine, although my engine is only a 5 h.p.?—T.G., Hull.

We should recommend you to fit separate exhaust pipes to each cylinder, and make the bends in the pipes as gradual as possible. This will enable the engine to run cooler, as also will fitting a large silencer, which gives room for the expansion of burnt gases.

Various Interesting Queries.

(1.) Will a 26in. by 2¼in. Goodrich rubber-studded tyre fit rim suitable for Clincher tyre (machine 3½ h.p. Triumph)? (2.) I should like to join the A.C.U. What preliminaries would be necessary? I do not belong to any club at present but C.T.C., and I am not acquainted with any member of A.C.U. (3.) Can motor cyclists who are not members of M.C.C. take part in London to Edinburgh run? (4.) I believe I have read that solution of sulphate of soda will remove carbon deposit from inside of cylinder. Is this correct? and if so, what strength of solution should one use, and how should one proceed to use it?—C.F., Preston.

(1.) The tyre in question is suitable for Clincher rims. (2.) Fill in the proposal form (see page 5, this week), and send it to the secretary, Auto Cycle Union, 18, Down Street, Piccadilly, W. (3.) Entrants for the London-Edinburgh run must become members of the Motor Cycling Club. The hon. sec. is Mr. Arthur Candler, 1, Lime Grove, Shepherd's Bush, W. (4.) The one and only method is to scrape the deposit off with a long screwdriver.

Concerning a Twin-cylinder Mach-ne.

I should be glad if you could help me concerning a 5 h.p. Vindec, 1906 pattern. (1.) When started it picks up on one cylinder and until it is given a stroke of the pedals does not fire on both. Once started on both it behaves all right until I have to slow the pace considerably, when it goes back to one again. I fancy it is the back cylinder. Oleo plugs quite clean. The magneto may perhaps want remagnetising, for it never used to behave in this way. (2.) New rings, etc., were fitted last October. Compression poor now. Should I fit new ones again? Only two were renewed in each cylinder. It should not require reboring. (3.) The Longuemare carburetter is constantly dripping at the air inlet, though the level does not seem to be too high. (4.) What gear should I use? I have an adjustable pulley (Vindec), but a ⅞in. back belt rim, 18in. in diameter, does not allow me a higher gear than 4¼ to 1, because the pulley is made to take a 1in. belt.—C.H., Cambridge.

The fibre ring of the magneto contact breaker is probably worn. The rocking arm on which one platinum point is mounted may also be worn. If you renew these two parts we think you will find that the trouble will disappear, but if this is not the case write to us again. The high tension carbon brushes should occasionally be taken out and cleaned with fine sandpaper at the contact end. You can soon find out which cylinder is misfiring by holding down one of the inlet valves in turn by the spring plunger at the top of the inlet dome. The dripping of the carburetter may be prevented by carefully grinding in the needle with oil and crocus powder. The gear is about right unless you are very light.

Strength of Inlet Spring, Carburetter Adjustment, and Position of Plug.

(1.) In a 3 h.p. Fafnir engine what force should be required to open the automatic inlet valve? On an engine of this make which I am now using a weight of 17 oz. is needed to just depress the valve off its seat. This seems excessive, and will, I think, throttle the mixture appreciably, at low speeds at any rate. I tried adjusting it to open with a weight of 4 oz., but gas appeared to blow back into the inlet pipe. (2.) The Longuemare carburetter has a 24 mm. cone and a 10 slot jet. It works quite well, but only runs about eighty miles to the gallon. What size cone and jet do you recommend with this size of engine (75 by 80 mm.)? A smaller jet with the 24 cone causes misfiring I find. (3.) In the same engine the sparking plug is in a recess which is connected with the combustion chamber by a small hole. This will, no doubt, stop sooting of the points, but will, I should think, prevent firing of weak mixtures owing to the products of combustion left in the spark plug recess. Do you think that a plug in the centre of the cylinder head in place of the compression tap would give better results?—J.P., S.W.

(1.) We would suggest a weight of about eight to twelve ounces. (2.) If the machine works well with a 24 mm. cone and 10 slot jet it would be as well to experiment with an extra air inlet, so that you can give the engine as much air as possible without making it misfire. This should reduce the consumption to a considerable extent. The exact size cone and jet can, of course, only be found out by experiment. The level of the petrol makes a difference to the amount of air required. A similar engine to yours that we know of runs perfectly with a 6 jet and 18 air adapter. (3.) We do not think you would gain anything by altering the position of the sparking plug on this engine, but it might be possible to fire a weaker mixture in that way.

Cause of Misfiring in Twin-cylinder Engine.

I have a 6-8 h.p. Fafnir engine of the overhead mechanical inlet type. It needs a lot of petrol squirted into the cylinders to start it, and then it will only run at a very high speed, continually misfiring, and running sometimes on one cylinder and sometimes on the other, but rarely on both at the same time. Every mechanical part is perfect. The timing is absolutely correct. I have tried a new carburetter (mine is a Longuemare), a new contact maker, rewired the whole system, and fitted an extra earth wire to the half-time shaft, but without any signs of improvement. The cylinders fire at an angle of 180°, and I have tried a different mixture for each cylinder without success. The sparking gap on the plugs is some distance from the combustion chamber, the sparking plug hole being deep on account of the water jacket. Is it possible that on this account the explosion gases do not find their way to the plug?—N.M.M., I. of W.

The engine in question is a good one and the position of the spark in no way affects the running. It is highly probable that the misfiring is due to the amount of opening of the inlet valves being different; that is, one or other of the tappets require adjustment. If this is not the case, the trouble is likely to be caused by the carburetter being badly adjusted. The symptoms described seem to show that the carburetter receives too much air at slow speeds, and that a smaller choke tube is required.

READERS' REPLIES.

I notice a query from A.M., Hanley, relating to a mysterious trouble. It may interest you to hear that I had an almost identical problem set me the other day by a 9 h.p. Riley car. The car would start off readily and run perfectly for a mile or two, or sometimes less, and then, without any misfiring, it would slow down and sometimes stop dead. Half a turn of the starting handle was sufficient to set it going again, when it would run well for a time, but sooner or later the same thing would occur. I tested the plugs, looked to the wiring and contact maker, cleaned the jet, and tested the petrol pipe for obstructions, but with no result. At last one day, while trying in vain to hit on the cause, I discovered it by an accident. The engine was running in a weak sort of way for no apparent reason, and as I walked round the machine I happened to catch hold of the low tension wires from coil to commutator, when immediately the engine started racing with all its old power. The fault was due to an invisible defect in the insulation of the low tension wires, causing an intermittent short circuit. The curious part of the affair was that the engine never once missed fire.—CYRIL A. POTTS.

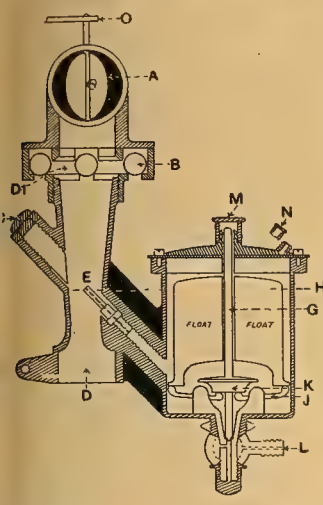
In your issue of February 19th, 1908, I see someone who signs himself "Amateur," Middlesex, has an erratic running engine. Well, I have had just the same symptoms myself with a 3½ h.p. Brown. What I want to say is I found out the remedy for mine, which answers well. The reason was this, in starting I injected paraffin and got it to fire all right. This paraffin to a certain extent washed the cylinder walls, and most important the air-cooled oil (Price's) in crank chamber is so thick and solid that it clings to flywheels, etc., and won't splash up well under a couple of miles, that is, until crank chamber becomes warm. My remedy is this. I jack front wheel up on an empty petrol can, and put a small paraffin lamp under crank chamber and let it burn half an hour to warm it up. This warms up the cylinder as well, and the result is no paraffin injections, no engine kicking, no trouble—goes like a train. I find this a perfectly safe method if there are no leaky joints, etc., for petrol to vaporise. I wrap carburetter up in a damp rag. Of course, another remedy is thinner oil to be used in winter, but I prefer the thick oil and warming up process.—P. G. JACKSON.

"Puzzled" writes: "My machi is a 1907 four-cylinder F.N., a the fault was in the conta holder. The hole that is drill in the contact holder for carbon bru spring had been drilled twice, and l a groove, so that the spring got fix in it, and the carbon brush only ma contact with the brass disc for th of the cylinders, and kept missing t disc for front cylinder contact owi to disc No. 1 being a little below t distributer. I filed the groove of c bon brush holder, lengthened t spring, took out No. 1 brass disc, a fitted a thin carbon ring which ma it perfectly level. The machine l been O.K. ever since. I am mu obliged to Mr. A. Stallybrass a yourselves."

"THE AUTOCAR," which i published under the same p prietorship as "The Motor Cycl is to the automobilist what t journal is to the motor cycli. Any reader of "The Motor Cycl who is also considering the p chase of a car should make a po of obtaining "The Autocar"—t leading motor journal. Price Issued weekly.

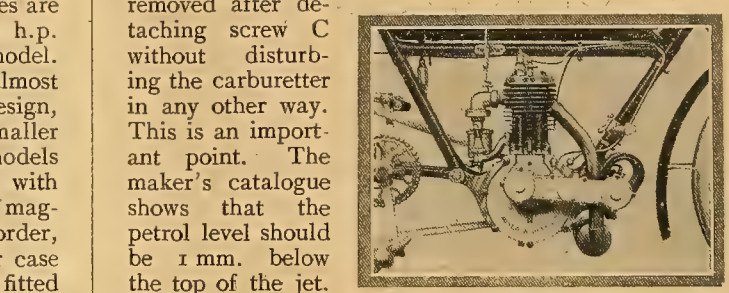
Notes on 1908 Models.

AMONG motor cycles which have been considerably improved for 1908, the Minerva calls for special mention. The design of this make is extremely neat and practical, and the prices are most moderate. Our illustration depicts the 3½ h.p. single-cylinder model. The 2¾ h.p. is almost identical in design, except for the smaller engine. Both models can be fitted with accumulator or magneto ignition to order, and in the latter case the magneto is fitted just in front of the crank chamber on a special bracket, and driven by an ingenious form of eccentric gearing, which has been the subject of a previous illustration in these columns. The 2¾ h.p. model has an engine of 76 × 76 mm., and the 3½ h.p. 82 × 82 mm., both with mechanically operated valves. The standard tyres are 26in. × 2¼in. with butt-ended inner tube to the rear wheel. There are three security bolts fitted to each wheel to prevent the tyre creeping. Detachable footrests are supported on the down tube. The standard pattern machine has rigid forks, but spring forks can be supplied at a slight extra cost. The spring fork is the already well-known Simplex pattern. The magneto the Eisemann with separate coil. The automatic carburetter shown in detail (see sectional line illustration) is made under the F. and A. patents. The method of controlling the additional air supply is interesting and original. Under the illustration will be found a lettered inscription of the various parts, which will make the following description quite clear. The mixture chamber above the jet carries a metal ring drilled with holes of various dimensions, covered by metal balls of corresponding sizes. When the engine is running slowly, the lightest ball only will be lifted from its seat by the suction of the engine, admitting only a small quantity of additional air. As the speed of the engine increases, the larger balls are lifted, thus admitting the extra air necessary.

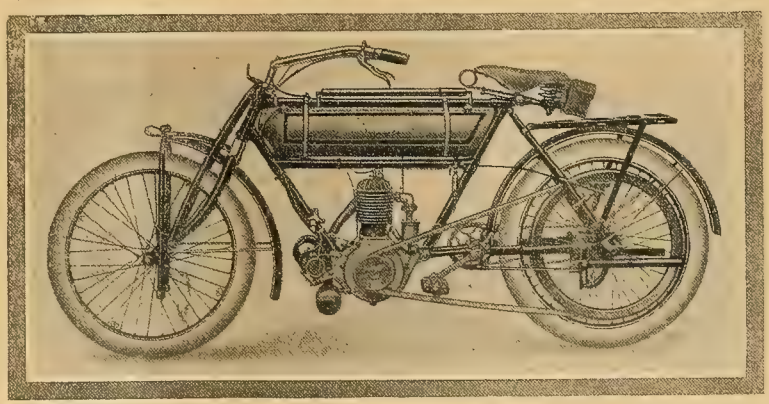


A. Throttle.
B. Balls controlling additional air inlets.
C. Screw covering jet.
D. Aperture for main air.
E. Jet.
G. Needle valve.
H. Line of petrol level.
J. Levers controlling needle valve.
K. Balance weight on needle.
L. Petrol inlet.
N. Cap to float-chamber.
M. Cap to needle valve.
O. Throttle lever.

The jet orifice is placed at the narrowest part of the conical chamber connected to the float chamber, and hot air is drawn in at the base through a funnel-shaped tube fitted close to the cylinder. The spray can be removed after detaching screw C without disturbing the carburetter in any other way. This is an important point. The maker's catalogue shows that the petrol level should be 1 mm. below the top of the jet. This can be checked by removing the screw C above mentioned. We would also draw attention to the petrol strainer on the feed pipe. When the machine is provided with accumulator ignition, two fifteen ampère hour batteries are fitted in a case behind the seat tube. Lycett's luggage carrier and Price's stand are fitted to the chain stays, bringing the machine completely up-to-date. The round tanks are an innovation this year. At the front about three pints of lubricating oil can be carried, and in the rear portion about 2¼ gallons of petrol. The consumption of the 2¾ h.p. engine is about 90, and the 3½ h.p. engine about 80 miles to the gallon of petrol. Other models are the 4½ h.p. and 7-8 h.p. twin-cylinder. Both are V type and with mechanical valves, the former being 70 × 75 mm., with cylinder and head cast separately and yoked together, and the 7-8 h.p. 80 × 85 mm. with cylinder and head in one casting. Although we have had no opportunity of riding one of the latest Minerva machines, we consider that this year's patterns are the best the company have introduced, and proves that this old established firm, the first to introduce the motor bicycle commercially into England, have not lost sight of the fact that there is a considerable demand for motor cycles, for which they are catering in an up-to-date form.



The power unit of the single-cylinder Minerva.



The 1908 model Minerva with Eisemann magneto and spring forks.

Riders of the Werner motor cycle will be interested to learn that Beard Bros., of Cricklewood Broadway, London, N.W., are in a position to supply all spare parts from stock for this particular machine.

The United Motor Industries, Ltd., 45, Poland Street, London, W., and Sherbourne Works, Coventry, now stock Stanley-Dermatine belts in all sizes for motor cycles.

Does an Air-cooled Engine Overheat?

I MUST apologise for not replying to some of the correspondents who have discussed and criticised my remarks, but it is far better to wait and reply to all criticisms simultaneously, which I have done hitherto.

The title of this discussion should have been, "Can a Motor Cycle Engine Overheat under Normal Conditions?" Certainly an air-cooled engine can be made to overheat, but my argument is that under conditions which occur on the road a reasonably designed engine does not fail through excessive temperatures, but through various other causes, each having its own and separate remedy.

Replying to Mr. Verney, who is the first correspondent, in reference to Mr. S. F. Edge's test, feeling quite sure that Mr. Verney was at fault, I wrote to Mr. Edge, who replied: "Certainly keeping the water jacket warm increases the power of the engine and decreases the consumption. In the tests you refer to, although the water came direct from the mains merely as a convenience, the outlet was sufficiently restricted to cause the water jacket to attain the temperature we thought best for the purpose of the test. I will send you shortly some tests dealing with the different powers at different temperatures." This report I have now received, and shall be pleased to show it Mr. Verney, though it has already been published in *The Autocar* and other motor car papers.

Motor Cycle Engines. A Comparison.

Another correspondent has corrected Mr. Verney as to his and my acquaintance with Boyle's Law, which has nothing to do with the subject whatever. Mr. Verney overlooks the fact that the inlet valve and other parts are not cold in a water-cooled engine, and that the incoming charge probably is expanded as much in one engine as in the other, though I imagine that this expansion is very small in motor cycle engines, due to the high speed at which the cycle of operations is carried out. Air is well known to be most difficult to heat, convection being practically the only way to effect it. Just how the gas is heated so quickly in the fraction of a second to effect any serious reduction in volume is not quite clear. Gas engineers talk about reduction of charge, and quite correctly, as they are dealing with considerably larger volumes, larger heating area, and longer periods. This partially replies to Mr. Nevill.

I had a gas engine similar to Mr. Verney's, and when under load, if the engine commenced to pick up speed suddenly, and consequently deliver more power, I knew at once that the water circulation was failing. Here my engine was developing more power when overheating! As the circulation was by thermo-syphon, I was unable to run the engine warm enough to obtain maximum power, *vide* Mr. Edge's tests, in which he finds 150° F. in the engine under test give the best results. Mr. Verney's remarks as to vaporisation in the carburetter being the reason why engines do not give their power until warm are not correct, except where the carburetter is water-jacketed. There are a large number of causes, in which vaporisation is one of the smallest. In my car engine the induction pipe becomes covered with frost when and after the engine has "warmed up," whilst it is at a normal temperature before starting. The carburetter is heated in no way whatever, but due to vaporisation is colder when running than otherwise. It runs better when warm than cold, and chiefly because less heat is lost to the water-jacket and more converted into useful work.

Air-cooled Engines in America.

To "Interested" I would point out that there is a difference between sufficient lubrication and smoke pouring out of the silencer. Radiators and water jackets are provided on a car because it is inconvenient to fit air-cooled engines. In America air-cooled engines of quite a large size are used successfully. They entail a special kind of bonnet, which allows air to impinge on all the cylinders, and special fan arrangements for supplying a blast of air to the engine. It is outside the present question, but I am perfectly convinced that air-cooling is practicable on cars. It is ridiculous to suggest that I drive without radiators, as the car would then be operating under abnormal conditions. If "Interested" had read my original article he would not have made these remarks.

To Mr. A. W. Browne, whose remarks are to the point, I reply to his three suggested causes. To (1) I would refer him to my remarks above bearing on high engine speed, difficulty of heating gases under any conditions whatever, and absence of the best condition for heating them. (2.) This runs parallel with my suggestion of insufficient lubrication. I am inclined to think that Mr. Browne is right, and that where I found increasing the lubrication remedied the trouble it might be due to the oil in the engine deteriorating with some classes of oil. (3.) Preignition. This I have suggested as the cause of the engine stopping on hills, but I do not call it "overheating"; I call it "pre-ignition." It is either due to some part becoming incandescent or to exhaust retention, the remedies being obvious.

Some Fallacies take a lot of Killing.

I am glad to note that "H.M." is inclined towards my opinion, that is to say, that many other troubles are attributed to overheating, and it is the cloak under which the ignorant cover their mistakes. I thank him for correcting Mr. Verney. The same mistake was made in a discussion on overheating some years ago.

Replying to Mr. Nevill, who goes into the question at some length, I am not by any means trying to upset gas engineer's theories. With reference to Mr. Roots's experiments, I have no recollection of it being said that the engine was under load at the time. The important point was omitted by Mr. Nevill in his article. Hence in my opinion there was no connection between engine speed and power. In any case the increase in power would not be noticeable on a motor cycle engine. Thirteen revolutions per minute increase is not a large percentage, although I am aware that Roots's engine ran at slow speed, and I do not think the result would be noticeable on a motor cycle engine. I fancy Mr. Nevill will find that the engine was a two-stroke one. However, I am not trying to argue that a hot charge is better than a cold one, as it is well-known not to be. What I do say is that Mr. Roots's experiments do not show that the ingoing charge is heated to any great extent in a motor cycle engine. The experiments were carried out many years ago before the present type of engine existed, and my opinion is that

Does an Air-cooled Engine Overheat?

in the time, the gas has very little chance to expand under temperature to any appreciable extent.

High Engine Speeds Compared.

Undoubtedly in gas engines running at slow speeds there is a considerable volume taken at each stroke, and when running at slower speeds its expansion is noticeable. This is why gas engine designers have to consider the feature, whilst I think petrol motor engineers can ignore it. With reference to the high speed of the J.A.P. engine, if this does not satisfy Mr. Nevill I would refer him to the Coupe des Voiturettes of last year, in which the Sizaire et Naudin won, the engine speed averaging 2,100 r.p.m., and often running as high as 2,500 r.p.m. This with a bore and stroke of 100 × 120 mm. Also the T.T. Triumph at Brooklands with its engine speed of 2,500 r.p.m. If these engines can run at such speeds, and develop good power, the one for a long race, surely exhaust retention should not present much difficulty to motor cycle engineers with their smaller volumes. Indicator diagrams may be obtained to prove any point, and the fact that Mr. Nevill found exhaust retention to be an important feature in one engine does not prove its presence in many other engines. Some gas engineers think that a small amount of exhaust gas retained is a good feature; for instance, Mr. Grover. This theory, however, is not generally accepted.

I agree with Mr. Nevill's definition of overheating, which is a fairly obvious one, but does not go much further. Certainly one can make an air-cooled engine overheat, but in my opinion an engine on a motor cycle, under the conditions it works, does not ever stop from any cause such as overheating, which cannot be remedied.

Mr. Dugald Clerk's remarks deal with gas engines and not with motor cycle engines. The difference lies in the speed and volume of charge.

E. W. WALFORD.

In Next Week's Issue we hope to publish an article by a T.T. competitor explaining why an air or water-cooled engine overheats.—Ed.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 243.*)

THE EXPENSE OF MOTOR CYCLING (continued).

DEPRECIATION.

Any machine will depreciate twenty-five per cent. in value at the end of one year's riding. For those who do not want the most expensive and latest thing on the market there is a method for avoiding depreciation losses, and it is to buy a machine of the previous year. For example, I sold a 3 h.p. machine for £25 two years ago; the then purchaser has just sold it and obtained £26 for it. To avoid depreciation, therefore, buy second-hand machines of the best make. This advice is for the rider whose purse is shallow.

Supposing, therefore, that an aspiring rider starts his first year with a sound 2¾-3½ h.p. motor bicycle of good make, his balance sheet for 5,000 miles will be as follows.

	£	s.	d.
Fixed expenses	5	16	8
Spares and accessories ...	2	9	6
	£8	6	2

If he has battery ignition he must add a little for recharging fees. If he is not willing to study a handbook like "Motor Cycles and How to Manage Them," and to thresh out every difficulty on the road or at home unaided, till he has mastered the sport, he must add an unknown sum for professional assistance, but if his machine is a fair sample of the best makes this sum will never exceed £2 in the distance, unless he is a great fool.

The second year there will be required in addition to the above, two new tyres complete at £3 12s. the pair, another new belt 12s., oddments, say, £1. Total £5 4s. Deduct from first year's expenses the cost of the lamp and horn (£1 1s.), and the second year's bill will be £12 9s. 2d.

The above figures are not a dream of the enthusiast's brain, and they make it obvious that if *motor cycling be pursued on strictly penurious lines* it is the smallest of extravagances, and may even be for many business men an economy. There are motor cyclists who take their machine to a repair shop for every tiny adjustment, buy an expensive outfit of clothing, break a pair of goggles once a month, and so on. But there are enthusiasts who indulge in the sport at no greater expense than I have described, even though their machines are second-hand, and picked up at a bargain figure.

FILLING TANK WITH PETROL.

186. Always use a funnel with a strainer.

A good funnel has an inturned edge to prevent splashing.

A good funnel has an air escape groove down the stem.

A good funnel will hold water on its gauze strainer.

The most useful thing for the purpose to carry with one is a petrol pourer, made to screw on to the spout of a two-gallon can.

If the petrol can be held with its spout in the uppermost corner the air valve in the spout will act—not otherwise.

FILLING TANK WITH LUBRICATING OIL.

187. A weary business, since the oil is usually so thick and the aperture so small. Stand the oilcan on the top of a stove not too close to the fire for a few minutes first, and use a big funnel, which may be left with a quart of oil in it, to trickle through at its leisure. Tank makers should see that as large a filler as possible is provided.

FIRE AND MOTOR CYCLES.

188. Petrol vapour when mixed with air is extremely inflammable. Lamps and smokers should never be allowed near when spirit is being poured or leaking. If the carburetter catches fire the first thing is to shut the petrol tap—simple, but often forgotten. The flames can then be beaten out with a cap, or smothered with a rug or jacket.

Avoid machines on which the electrical wiring passes near or under the carburetter.

Avoid machines on which the exhaust pipe or silencer comes directly under the carburetter; there are many such, and a few of them are annually burnt.

Water only spreads a petrol fire. Use sand, mud, road dust, coat or cap.

Always keep a big bucket of sand in motor cycle shed.

GEAR RATIOS.

189. It is immediately obvious that the same gear cannot possibly suit Devon and Lincolnshire, summer and winter, an eight stone rider and a fifteen stone rider. Therefore, until every machine has either a variable gear or an adjustable pulley, each purchaser should select a gear suited to his weight, the season of the year (low for winter, high for summer), and the nature of the country he rides in. Small engine pulleys cause belt slip, and are unfortunately rather severe on the belt. The following gears are recommended for single motor bicycles, either separately or in combination, if a variable gear be fitted.

H.P.	Summer gears. Average.	Heavy	Lt.	Winter gear.	Second gear, if any.
3	5	5½	4½	lowest practicable	8½
3½	4½	5½	4	,, ,,	8
5 (twin)	4½	5	4 or 3½	,, ,,	7½

The terms "average," "light," and "heavy" refer to the rider's weight. The above gears are founded on long experience and practice, and apply to motor bicycles with 26in. wheels. Increasing the size of the wheel has the same effect as increasing the gear, and *vice versa*.

(To be continued.)

CURRENT CHAT.

Special Features.

MOTOR CYCLES ON BROOKLANDS.

CLUB NEWS FROM ALL PARTS.

The Motor Cycle" Spring Number.

May 6th is the date on which the special spring number of *The Motor Cycle* will be published. Special articles and illustrations are being prepared for this issue.

Barnes and the Grand Prix.

We hear that George Barnes will not drive one of the Austin cars in the Grand Prix Race, as was stated in a French contemporary. He will probably be seen at the wheel of another British make that will be a late entry.

Date fixed for End-to-end Run.

It has now been announced that the A.C.U. Land's End to John-o'-Groat's six days' ride will commence on Monday, July 13th. Further particulars of this event, which promises to be even better supported than in 1906, will be published shortly.

Brooklands Motor Cycle Race.

The regulations for the first motor cycle race at Brooklands at Easter are simple enough, and on account of the entrance fee being low there should be a splendid entry. Cash prizes and a cup or medal are offered at the winner's option.

Particulars of the Race.

The B.A.R.C. has circulated the following particulars: The First Brooklands Motor Cycle Race of 25 sovs. (20 sovs. or a cup to the entrant of the winner, at his option; 5 sovs. or a medal to the entrant of the second, at his option.) For motor bicycles of which the engines, if twin-cylinder, do not exceed 80 mm. by 98 mm. for each cylinder. Distance, about 5½ miles. Entrance, 10s., p.p. (Twenty entries, or the race may be void at the option of the Executive. The Supplementary Regulations approved by the Auto Cycle Union shall apply to this race.)

Motor Cycle Races at St. Albans.

At a meeting of the St. Albans Athletic Club recently, writes Mr. D. R. Clarke, it was decided to cater for the motor cycle more so than in the past, and it is definitely settled there will be three motor cycle races, each of five miles, and each having a first prize of £5, second (if three starters) £3, and third (if five starters) £2. One is a tourist race confined to a radius of five miles round St. Albans, the two others being racing machine events, one a scratch and the other a handicap. The track is 2¾ laps to the mile, and, the banking being moderate, fair speeds are possible of attainment.

A Trap in Kent.

Last week the police commenced operations with a trap at the entrance to Hadlow village, Kent, at the Maidstone end.

Oxford v. Cambridge Motor Cyclists.

The above match will not be held on Brooklands track, as the teams decided that it would be an inconvenient venue in term. The competition will be at Sharpenhoe on May 30th, and the Cambridge team will be as follows:

Cambridge	v.	Oxford.
One 7-9 h.p.	v.	1 ,,
One 5-6 h.p.	v.	1 ,,
Two 5 h.p.	v.	2 ,,
Two 3½ h.p.	v.	2 ,,
One lightweight	v.	1 ,,

It is proposed to make this event an annual one.

The Open Hill-climb on Saturday.

We are now in a position to divulge the name of the hill on which the Lewisham A.C. will hold its open hill-climbing competition for motor cycles on Saturday next, the 4th inst. It is Carter's Hill, a corresponding ascent to River Hill, but not very easy to locate.

How to reach Carter's Hill.

A correspondent describes the best way down to the hill. The Sevenoaks Road is followed to the crown of River Hill, where the byroad at the danger-post is taken. This skirts Knowle Park, and is a most picturesque bit of road densely wooded on either side. Another byroad that might easily be passed unnoticed is met. The club should sprinkle confetti at this point, thus indicating the route. The run to the hill is charming. It is a twisty road through woody country, and the scent of the pines is all round you. Of human or animal life there is none. Nought is heard save the beat of your engine and the roar of the spring wind through the trees. There is a glimpse of open country through a screen of woodland. A turn of the road and a steep drop awaits you. It is Carter's Hill.

What he Found in the Carburetter.

A Wiltshire reader sends us a post-card he has received from a friend, the contents of which are very funny. The postcard reads: "I took carburetter down yesterday in a last effort to remedy misfiring, and found therein twenty-four lumps solder (assorted), one piece rope, portion of hair mattress, one boulder (granite), one boulder (flint), seven pieces of bone, child's teething ring, quantity of Watson's Matchless Cleanser, two gills best Vacuum oil (the oil that lubricates most), iron and brass filings (assorted), quantity manure (liquid and solid), and piece of oak tree. After that I expected to find a threepenny piece with a hole in it, but was very much disappointed not to."

A Curious Error.

A local paper points out that the ten miles limit board at the London end of Bromley is erected on the wrong side of an adjacent lamp-post, so that only the plain side of the warning board is illumined. As such, it is unnoticeable after dark.

The Motor Cyclists' Ideal.

We had hoped to be able to announce something definite with regard to "The Motor Cyclists' Ideal," but such a large number of forms having been returned by readers duly filled in, it will take some time to go into each reply separately. We refer to the matter in a leaderette this week.

Sidecars Increasing.

It is not difficult to notice the increasing popularity of the sidecar attachment. On a short run recently we noticed five passenger attachments of this nature. There is no doubt a sidecar attachment has many advantages, not the least of which is the fact that on one pattern at least it can be instantly attached and detached, rendering the usually difficult storage an easy matter. Users of rigid sidecars who complain of difficulty in steering should check the alignment of bicycle and sidecar wheels. Unless all are perfectly in track there will always be difficulty in steering. Old motor tricyclists can manage to steer the fixed pattern sidecar the best.

The New Sport.

Extract from Mr. H. G. Bell's paper "The Future of Motor Cycling," read before the Auto Cycle Union on Feb 28th, 1908: "I do not mean that they were bumpy, but greasy. From the Strand I slipped down to the Embankment."

A new delight, ye motor men!—
Bestride the speedy light F.N.
And go a-sliding.
A new delight, a fearsome treat,
A fresh and wondrous sort of feat—
A joy abiding!
Slip from the Strand to the Embank-
Ment, then slip back again and thank
Good Mr. Bell—I'm sure you ought—
For teaching us this novel sport!

—F.G.

The Brooklands Motor Cycle Race.

Entries for the motor cycle races on Brooklands Track at Easter should be forwarded to the Brooklands Automobile Racing Club, Carlton House, Regent Street, W.

American Motor Cycle Records.

An American journal waxes exceeding wrath in a leaderette because of the statement in a recent issue of *The Motor Cycle* that the Auto Cycle Union has not hitherto recognised motor cycle records created in America. It would be a good thing if the same journal would devote the same amount of space to a leaderette explaining why American motor cyclists will be made professionals if they compete in the private owners' class in the Land's End to John-o'-Groat's Run next July.

Actress secures £75 Damages.

Miss Francis Joan Walbran, an actress, was awarded £75 damages against a motor cyclist, Mr. Algernon Wright Cox, the Orchard, Maidenhead, in the King's Bench before Mr. Justice Lawrance and a special jury on Wednesday last. Riding his motor cycle Mr. Wright Cox collided with the back wheel of Miss Walbran's pedal bicycle while she was turning a corner in Bridge Street, Maidenhead, on July 24th last.

Grapperon's Tour de France.

Grapperon, on the Alcyon motor bicycle, has nearly completed the Tour de France (6,000 kilometres). He is expected back in Paris next Sunday.

Suggested Motor Cycle Races at Birmingham.

We have received the following letter from Mr. Chas. Wheelwright: "I beg to advise you that the *Sport and Play* cycle tournament has been fixed to take place at the Aston Villa Ground on Saturday, May 23rd. Provided the promise of sufficient support is forthcoming, we propose including two motor cycle events in the programme, with good value prizes, but before doing so should like to be satisfied that we are likely to secure a satisfactory entry, so as to make the races interesting to the public. Also, I should be glad to have the opinion of those interested as to the bore and stroke of engines to be admitted into the competition." Replies to this letter should be sent direct to Mr. Wheelwright, at Lucifer House, Lionel Street, Birmingham.

Annual Inter-club Meet at Richmond.

Richmond, Yorkshire, the venue of the 1907 monster meet of motor cyclists, has been selected again for an inter-club meet of Northern motor cyclists on Good Friday. The following clubs will take part: Middlesbrough, Leeds, Bradford, Sheffield, and Newcastle, and all other clubs in the North are invited to co-operate. Mr. Bernard Read, hon. sec. of the Bradford Club, suggests that this inter-club meet should be made an annual event. Bradford motor cyclists are anxious to improve their acquaintance with fellow riders, and consider this a fitting opportunity.

The next Paper before the A.C.U.

On Friday week, the 10th inst., Mr. Arthur Candler, the hon. sec. of the Motor Cycling Club, will read a paper on "Motor Cycle Touring" before members of the Auto Cycle Union. Mr. Candler has had a very wide experience of motor cycle touring, both in the United Kingdom and on the Continent, and descriptions of tours from his pen have appeared in *The Motor Cycle* from time to time. Tickets of admission may be obtained of the secretary A.C.U., 18, Down Street, Piccadilly, W.

FUTURE EVENTS.

April 4—Lewisham A.C. Open Hill Climb for Motor Cycles on Carter's Hill.
" 16-20—M.C.C. Easter Tour.
" 18 and 20—Brooklands Car and Motor Cycle Races.
" 19 (Easter Monday)—Lincolnshire M.C.C. Hill Climb.
" 22-28—Auto Cycle Club of France Reliability Trials.
" 25—A.C.U. Quarterly Trial.
" 25—Hertfordshire County A.C. Open Hill-climb for Motor Cycles.
May 2—M.C.C. Members' Hill-climb.
" 9—Brooklands Motor Races.
" 9—Essex M.C. Open Hill Climb.
" ——A.C.U. Annual Hill Climb.
June 5-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 13-18—A.C.U. Land's End to John-o'-Groat's Six Days' Reliability Trial.
" 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.

Members of the Motor Cycling Club starting from Purley Corner on the occasion of the opening run to Brighton on Saturday last.

The Motor Cycling Club.

Week-end Run to Brighton.

SHORTLY before three o'clock on Saturday afternoon last the members of the M.C.C. began to muster at Purley Corner for the annual week-end run to Brighton. The weather prospects had been anything but promising, but notwithstanding the unfavourable outlook by about 3.30 some forty members had assembled at the starting place. After going through the ordeal of being photographed, a start was made for Crawley, where the captain, Mr. E. B. Dickson, had made arrangements for tea at the George. In spite of the rain of the previous night, the roads were found to be quite good, and Crawley was reached in good time. At the George the club found several members of the Brighton M.C.C. awaiting to accompany them into Brighton. The run from Crawley to Brighton after tea was most enjoyable, the roads by this time having completely dried, the only incident worth recording being that one member, forgetful of the ten mile limit at Handcross, was interviewed by the police. Headquarters at Brighton were, as usual, at the Old Ship, where about sixty members and friends assembled for dinner in the evening, the president of the club, Mr. Chas. Jarrott, being in the chair. With the exception of welcoming the president to the opening run, and proposing his health in a brief and suitable manner, no speeches were made. This allowed the members ample time for a stroll on the sea front. After the good run from town, an excellent dinner, and with the barometer rising, everyone appeared happy and anticipated a pleasant return journey.

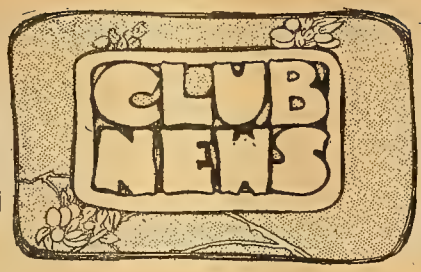
The Homeward Journey *via* Horsham.

The morning broke fine and sunny, and after breakfast the members assembled outside the hotel for another photograph, after which the homeward journey was commenced *viâ* Horsham and Dorking, a stop being made for lunch at the Burford Bridge Hotel. A good lunch was here provided, and after a smoke and a chat the members wended their way homewards to the various parts of London and the suburbs. The week-end run to Brighton and back has always been one of the most enjoyable events of the year, and the captain is to be congratulated upon the manner in which he has upheld this reputation. The hon. sec., Mr. Arthur Candler, was, unfortunately, laid up on Saturday with a feverish cold. Mr. Candler misses very few club runs. Of the motor cycles taking part in the run, there were eight Vindecs, three Triumphs, two Lagondas, and one each of the following: Brown, Bat, Quadrant, Minerva, Motosacoche, Griffon, Rex, and Werner. Of the cars, these were seven Rovers, and one each Phœnix, Deasy, De Dietrich, Riley, and Sizaire. Two members attending the run hailed from Peterborough and one from Coventry. Almost every member made a non-stop run out and home, and punctures were unheard of—an unusual thing at a big club run.

A representative group of Motor Cycling Club members outside "The Old Ship" at Brighton last week end. Twenty-one motor cyclists took part in this opening run.

ANOTHER TWENTY-FOUR HOURS' RIDE.

We notice that a twenty-four hours' ride to York and back on August 15th is included in the Essex Motor Club's 1908 fixture list. This makes the twelfth long-distance ride down for decision by motor cycle clubs this year, and goes a long way to prove the absolute reliance riders have in up-to-date motor cycles.



Sheffield and Hallamshire M.C.C.

The opening run is on Saturday next, to Retford (tea at the Pheasant); meeting place, Furnival Road, at 2.30 p.m. Riders in the district not members of the club are invited to join in the run.

Richmond and District M.C.C.

The annual dinner and annual general meeting of the Richmond and District Motor Cycling Club was held at the Florence Restaurant, Rupert Street, W., on the 24th ult. The club has decided to continue its affiliation to the Auto Cycle Union.

Brighton C. and M.C.C.

Members are reminded the opening run to Fittleworth (Swan Hotel) will take place on the 5th inst.

Motor cyclists in the district should note there is no entrance fee to join this club, and the subscription includes affiliation to the A.C.U.

The Worcestershire M.C.C.

Ten members of the above club rode to Holtfleet on Saturday last. Unfortunately, an accident occurred, which resulted in the disablement of one of the committee, so the meeting which was to have been held is postponed until next Saturday, at headquarters, the Golden Cross, Bromsgrove, at 3.15 p.m.

Bradford M.C.C.

The opening run is on the 17th inst. to Richmond to meet the Leeds, Sheffield, Bradford, Middlesbrough, and Newcastle Clubs. Other clubs are invited to join in this inter-club meet of Northern motor cyclists. It is proposed to hold an impromptu competition in the afternoon, say, a speed-judging or slow race. The Bradford Club will arrive at Richmond between 12 a.m. and 1 p.m.

North Islington Conservative and Unionist M.C.

The following gentlemen have accepted office for the above club: Patron, Sir William J. Crump, J.P.; president, Mr. George A. Touche; vice-presidents, Messrs. F. L. Dove, L.C.C., C. Kenneth Murchison, L.C.C., Councillor T. H. Day, Councillor S. E. Case, Councillor J. H. T. Reeves, and Councillor W. J. Smith.

Mr. Henry E. Davison will be pleased to send particulars of membership on application to 623, Holloway Road, N.

South-eastern Automobile Association.

The Lewisham Automobile Club has ceased to exist under this name. It has now changed its title, and in future will be known as the above, and amalgamation with other clubs is already in negotiation. Being in effect a new club, members joining at once will be enabled to do so without payment of any entrance fee.

A general meeting is being called, when the programme for the year and other matters will be arranged. Various special advantages are offered to members residing in the S.E. district. Particulars of Hon. Sec. Renner, Kidbrook Park Road, Blackheath, S.E.

North-west London M.C.C.

Perhaps the most important competition organised by this club is the twelve hours' reliability run to Coventry and back, which takes place on May 23rd next, over a course totalling 216 miles. Silver cups will be awarded to the successful competitors, and unattached riders in the North-west London district are invited to join the club and compete in the above and other competitions which are on the fixture list.

The trials hon. sec., Mr. A. S. Phillips, 84, Alexandra Road, South Hampstead, will be pleased to forward the rules to anyone applying for same. Members are reminded of the opening run to Tring (Rose and Crown) on the 4th and 5th April

Birmingham M.C.C.

The fifth annual report was presented at the general meeting held on Saturday last at the new headquarters, the Acorn Hotel, Temple Street. The club has a good cash balance in hand, despite a loss of £4 12s. 8d. on the last year's working. Sixty-two members paid subscriptions last year, as against forty-five in 1906. Ten new members were elected at the last meeting, and a number of competitions for this year arranged.

Walthamstow M.C.

The opening run will take place on Saturday, the 4th inst., to Ongar, where tea will be provided at the Crown Hotel, at 5.30 sharp. The start will be made from Greenleaf Road, Hoe Street, at 3.30 sharp. Intending members will be welcomed, and can obtain full particulars from the hon. sec., Mr. J. W. Percival, 13, Church Hill, Walthamstow. It has been decided to hold official Sunday runs, starting at 10.30 a.m. The run on the 5th inst. is to Southend-on-Sea (the Granville Hotel).

Ayr and District M.C.C.

At a meeting held recently, it was decided to form a motor cycle club under the name of "The Ayr and District Motor Cycle Club." There were twenty members enrolled. Mr. John Hourston was appointed president, and Mr. Matthew Browne, North Quay, Ayr, hon. sec.

All motor cyclists in the district interested in this movement are invited to communicate with the hon. sec. with a view to furthering the club's interests.

Essex M.C.

The opening run on the 5th inst. promises to be well supported, and it is to be hoped that all members will make every effort to attend. A start will be made at 10.30 a.m. from the Castle, Woodford Green, and lunch will be ready at 1.30 p.m. at the White Hart, Witham. Members who wish luncheon ordered should write to the captain, Mr. O. L. Summers, Southernhay, Loughton, stating their intention of taking part in the meet. Those who intend to take part in the Easter tour should attend at headquarters on Thursday, April 9th, to finally settle matters.

Western District M.C. (London).

It has been decided to hold the next competition on April 12th, the event to be a speed judging contest. The competitors to run in pairs, and must keep together during the contest and finish together. Competitors finishing without their partners will be disqualified. Route from eleventh milestone on Bath Road, continue to Henley, turn, and finish at Milford Hotel, Hounslow. Pair finishing nearest to twenty miles per hour will win. No watches allowed. A smoking concert will be held on Thursday, April 9th, at the Milford Hotel.

Black Prince M.C

The above club held a very representative meeting at its new headquarters, 624, Mile End Road, E., last Thursday evening, and after the initial business was got through, Mr. Steward, the hon. sec., was sorry to have to resign owing to pressure of business, but consented to act as chairman for this year. The following were elected on the committee: Messrs. Babbage, Bass, Booth, Webber, Crittenden, and James; treasurer, Walter Crittenden; auditor and trials handicapper, I. J. G. Babbage; captain, Thomas Andrews; delegate to A.C.U., Chas. Steward; hon. sec. (to be announced later). The following resolutions were duly passed: From this date hence the club will be known as the Eastern District Motor Club, London. Meetings to be held the third Wednesday in the month at headquarters at 8.30 p.m. The rules were revised, and runs arranged for April and May.

Club News.—

Dunedin M.C.C.

The annual meeting will be held in the Union Hotel, Lothian Road, Edinburgh, on Friday next, at 8 o'clock.

An effort was made recently to amalgamate this club with the Waverley M.C. It was thought by a large majority of the members that the union of the two clubs would tend towards the betterment of motor cycling in Edinburgh, but some disapproved of the idea, and consequently the movement has fallen through.

Middlesbrough and District M.C.C.

The opening run is fixed for Good Friday, to Richmond, leaving the Ring, Park Road North, at 8.45 a.m. A club photograph will be taken at 8.30 a.m. before starting. On Easter Monday the run is to Durham, leaving the Ring, Park North Road, at 9.45 a.m. On Easter Tuesday an open hill-climb will be held on Yearby Bank (near Redcar), at 2 p.m., open to amateurs. Entrance fee—Members, 1s.; non-members, 2s. 6d.

Hull and East Riding A.C.C.

This club held a very successful and enjoyable whist drive and dance at the Salisbury Hall, Hull, on Wednesday last, at which about 130 members and friends were present. The next event in the club programme is an auction sale of members apparatus, to be held before Easter.

On Good Friday members will ride to Richmond to join the Northern Motor Cyclists' Meet. On Easter Monday they will meet the Scarborough M.C.C. at dinner at the Brunswick Hotel, Bridlington.

Hertfordshire County A.C.

The programme of fixtures for 1908 is as follows:

April 25th.—Open motor cycle hill-climb.
May 2nd.—Meet at "Ashlyns," Berkhamsted, by invitation of R. A. Cooper, Esq.
,, 16th.—Members' fifty miles' consumption trial for cars and motor cycles.
,, 30th.—Meet at Hatfield Park, by permission of the Marquis of Salisbury.
June 13th.—Meet at Medmenham-on-Thames.
,, 20th.—Aston Hill-climb (cars).
July 4th.—Meet at Rose Cottage, Berkhamsted, by invitation of Ernest Webster, Esq.
,, 18th.—Annual gymkhana at The Grove, Watford, by permission of the president, the Earl of Clarendon.
Sept. 5th.—Members' hill-climb, Aston Hill.

Further particulars regarding the open hill-climb on April 25th will be announced in due course.

Cambridge University M.C.C.

The following is the calendar for next term:

April 25th.—Run to Peterborough for lunch.
May 2nd.—Saffron Walden for tea.
,, 9th.—Flexibility trials for twin and multi-cylinder motor bicycles for the Founder's Cup.*
,, 16th.—Hill-climb for the Moreing Cup and for the Hon. C. S. Rolls's Cup.
,, 23rd.—Reliability trials for the Rolls Cup.
,, 30th.—Cambridge *v.* Oxford (a team competition on Sharpenhoe Hill).
June 6th.—Run to Hunstanton and back.
,, 13th.—Run to Oxford and back.

*A silver cup presented by the founder of the club (Mr. J. P. Stokes) to be competed for yearly. The winner will be decided by the difference in time between a slow and a fast hill-climb on the same day and under the same conditions.

The Moreing Cup was presented by Mr. H. H. Moreing, More Park, Esher, for single and multi-cylinder motor cycles. The cup presented by the Hon. C. S. Rolls is for competition yearly, the winner to be decided by best performance in *(a)* hill-climb and *(b)* reliability trial.—*Communicated by J. P. Stokes (president).*

The Basingstoke and District M.C.

A paper entitled "Carburetters and Carburation" was read by Mr. W. Webber before the above club on Wednesday, March 25th. Mr. Webber commenced by explaining the duties of a carburetter, and with the aid of drawings and models described early types as well as some of the very latest. De Dion surface, Lanchester wick, and Longuemare spray were chosen as representatives of three different principles applied to carburation, whilst a sectional model of the latest Trier and Martin multiple jet carburetter proved of great interest to the audience. An interesting discussion followed. One member strongly advocated the wick type of carburetter, another variable jets, whilst considerable argument prevailed as to whether or not a weak mixture at high speeds was desirable. Votes of thanks to the lecturer and chairman (Mr. H. Williams) were carried unanimously, and the meeting closed.

Application for affiliation to the A.C.U. has been made, which body has agreed to affiliate motoring members only, considering the peculiar position of the club, which divides its membership equally between motoring and prospective motoring members.

On Saturday next, Mr. F. Baron will read a paper entitled "Some Sights in a London Motor Omnibus Garage," and on Saturday, April 11th, a special meeting to discuss the summer programme will be convened.

Some Items of Interest at the Olympia Industrial Vehicle Show.

OUR readers would naturally not expect to see motor cycle exhibits in an industrial vehicle show, but despite the enormous contrast between the weighty and cumbersome 'bus, the ponderous lorry, and the motor cycle, the latter little vehicle has a habit of getting there, so that half an hour or so spent in looking round the Gallery will reveal several accessories about which readers of *The Motor Cycle* will like to hear. Among the tyre section we notice the well-known firms of Dunlop, Peter Union, and the North British Rubber Co., while the Elastes Co., Ltd., show two motor cycle tyres—a Michelin and a Peter Union—filled with their patent material. If one of the wheels filled with Elastes is dropped on the ground, it rebounds with a resilience which is quite surprising. The Elastes Co. inform us that they are now filling a good many motor cycle rear tyres, and that those they have done are giving great satisfaction.

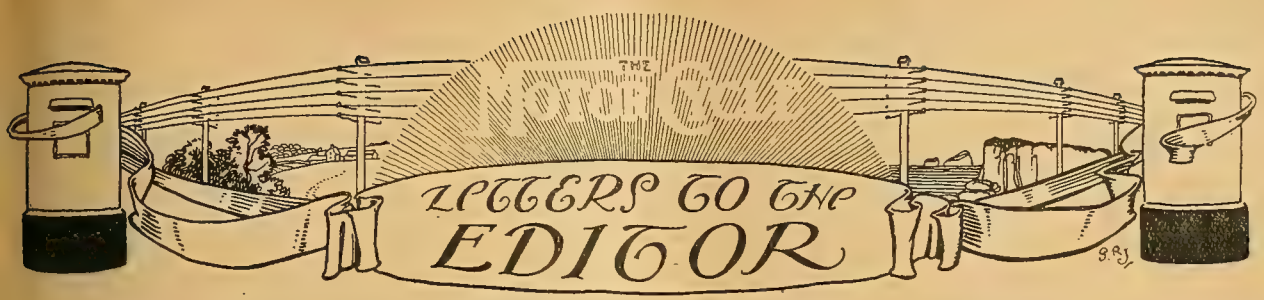
The method of working the Harvey Frost vulcaniser was fully dealt with in these pages some few months ago, so that most of our readers are well acquainted with this device, and it is interesting to note that the firm have introduced a new vulcaniser, the "Baby," working on the same principle as those which they have previously sold, but cheaper and considerably smaller, so that it will specially appeal to motor cyclists. The dimensions of the actual vulcaniser are 4½in. by 3½in., and those of the case which contains the complete outfit 6in. by 3½in. It is beautifully made, and should prove to be a valuable adidtion to the motor cyclist's kit.

Gamage's show of accessories is as unique as it is extensive. There is no need for us to dwell in detail upon the articles shown, as these have been so recently described. It is, however, worth noting that their tyre-stopping preparation, known as "Philkut," is commanding a ready sale, and is giving great satisfaction to motor cycle users.

The ignition firms are well represented. The Simms Motor Manufacturing Co. are showing their British-made Simms magnetos, now made entirely at their works. C. A. Vandervell and Co. show the new C.A.V. magnetos, accumulators, and coils. The Prested Battery Co. is also represented, and besides their usual batteries and induction coils, they will be showing later an interesting novelty, which we hope to describe next week. Pearson and Co. show motor cycle accumulators; while the Bosch Magneto Co. have a particularly interesting exhibit. The two Bosch models which specially appeal to motor cyclists are the D.A.I. for lightweight machines and the D.A.V. for V-type twin cylinders. In both of the above the fibre ring has ceased to form a working part of the contact breaker. Instead, the rocker is insulated by a small fibre block, which makes contact with two steel cams. In the D.A.V. the brass cover is provided with a clip, which forms an additional connection to the condenser besides the spring.

All the industrial vehicles and their appurtenances on show will be exhaustively dealt with by *Motor Traction* in the issue dated April 4th, which will be on sale at the Show to-day.

The Hirst magneto machine for cars and motor cycles has just made its appearance.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address

Outside Flywheels.

[3207.]—My humble opinion about "outside flywheels" is that if the makers would only arrange the timing gear so as to allow a good heavy flywheel on each end of the engine-shaft, *i.e.*, on each side of the crankcase, all motor cycle engines would be better balanced and give more power. Why has this never been attempted? A. J. ATKINGS.

The A.C.U. and Unattached Riders.

[3208.]—There must be a great number of motor cyclists who would like to have the privileges the A.C.U. grants to members of the affiliated clubs and who do not wish to join a local club, either owing to the ordinary subscription being too high, or to their not caring for the social and sporting side of the club.

If the A.C.U. would grant these privileges for an annual subscription of, say, 3s. 6d., I feel certain that many motor cyclists would join. J. H. S.

Subscription too low; should not be less than 5s.—ED.]

Motor Shows in Scotland.

[3209.]—Regarding the recent discussion on the courtesy of British manufacturers, may I be allowed to point out through your columns a "sore point" amongst us Scotch riders; I refer to the matter of shows. It seems rather hard that, while the Englishman has, as a rule, at least one show of motor cycles a year within easy distance of his home, we have absolutely none. I have been an enthusiastic rider for seven years, and take a keen interest in the progress of the sport, but have no time to run down South for shows, and therefore never get a chance of seeing a representative collection of machines together for comparison. Though a motor show is held annually in the Waverley Market here (Edinburgh), there was not a single motor cycle there, as far as I saw, this year. I trust to see this remedied. SCOTCHMAN.

The Future of Motor Cycling.

[3210.]—I am deeply interested in your effort to improve the breed of the lightweight, for I am convinced that were a thoroughly efficient lightweight evolved we should see a large increase in the army of motor cyclists.

I am one of the few Catholic priests in this country who are motor cyclists. I began with a 3 h.p. 1904 Ormonde, and my present mount is a 1907 Triumph. The latter is a splendid touring mount, but in making frequent calls within a short radius, and having to stop and start the machine very frequently, considerable energy is required, and fatigue produced. I could not for this reason recommend a machine weighing 150 lbs. to my *confrères*, most of whom use pedal cycles on their daily rounds in the country. What I require, and what would suit them also, would be an improved Moto-Rêve. (REV.) STEPHEN I. BROWN, C.C.

Co. Tyrone.

[3211.]—I notice that Mr. J. Van Hooydonk has been expressing his opinion very frequently of late in *The Motor Cycle* in regard to the relative merits of the light and heavyweight motor cycles, which possibly someone may take seriously. Personally, I have every respect for Mr. Hooydonk and his knowledge of motor cycling, and believe that he intends to do a lot of good hard work in its cause, but I do not think at the present moment that he is qualified to express an unbiassed opinion.

Mr. Hooydonk undoubtedly was an expert in motor cycling in the early days, but for the past three years I have failed to see him in any of our long-distance reliability trials on anything except a tricar or a light car, and if he has done any riding on an up-to-date high-powered motor cycle it must have been on some dark night when no one was there to see him.

The experience he mentions of riding a 2½ h.p. machine up Westerham Hill at twenty-five to thirty miles an hour, and yet when he tried to run it through the traffic in London the machine kicked and the wheels skidded every time he tried to start, is a ridiculous comparison to make, as anyone with a knowledge of motor cycles must know that a 2½ h.p. that was tuned to go up Westerham at over twenty-five miles an hour would hardly be expected to be suitable for riding in London traffic.

Personally, I would much prefer to ride the whole length of London, from Mile End to Hammersmith, in the middle of the day, on a high-powered single or 5 h.p. twin than a low-powered machine. It can be run at almost a walking pace when required, and in an instant, when the opportunity arises for one to go ahead, it will pick up to twenty miles an hour, and it is not necessary to keep getting on and off, as he mentions. I believe it would be more interesting to the motor cycling public to have the various opinions of practical everyday motor bicyclists than the opinion of one who is known as a driver of tricars or light cars.

Further, I can only say that I thoroughly believe that there is room for the lightweight as well as the heavyweight machine. The lightweight certainly encourages the beginner, and when he has thoroughly mastered it he is then ready to buy a high-powered, substantially-built machine which he knows will carry him from Land's End to John-o'-Groat's without fatigue or worry. W. H. WELLS.

Actual Weights.

[3212.]—Perhaps you will permit me to give a warning to future motor cycling recruits, viz., not to believe the makers' statement about the weight of their machines. When I bought my machine, I was told that it weighed "about 110 lbs." The real weight is more like 170 lbs. If intending purchasers were to add from 10 to 20 lbs. to the weights of machines in the "Buyers' Guide," I think they would arrive at a nearer estimate of the real weight. This does not apply to lightweights, as I have no knowledge of them. With regard to exchange transactions, I echo "Solicitor's" statement about Messrs. Wauchope. Besides being exceedingly courteous, they are very prompt, and pay immediate attention to one's order. They gave me what I asked for my old machine without any hesitation, and sent off my new mount immediately on the receipt of my cheque for the balance. I have no interest whatever in this firm or in any cycle concern, and only write this to let motorists know where to exchange their machines when they want "the square deal."

I am surprised that makers do not pay more attention to covering their machines with efficient mudguards. Even with a large extension piece, and a big flap on my front mudguard, my legs are caked in mud up to the knees, while the belt sends a fountain of liquid mud on my back and head. Could not some inventive reader design a guard that would prevent a rider turning into a mud-heap on a wet day? If so, I am sure he would make a small fortune selling it.

I am eagerly awaiting the arrival of Mr. English's gear.

ROAD SWEEPER.

The Motor Cyclists' Ideal.

[3213.]—Allow me to take this opportunity to congratulate you on your splendid paper. During the number of years I have bought your paper I have never read of you preaching the gospel of the heavyweight to the exclusion of everything else. You have been fair beyond reproach, and, in my opinion, you have always had the best interests of motor cyclists in view right away through. M. U. DUNCAN.

Magneto Covers and Short Circuiting.

[3214.]—Perhaps the following experience may interest some of your readers. My 1908 Triumph is fitted with a magneto cover, which I obtained personally from their London depot. I have suffered from intermittent misfires for some time, and have at last discovered that the high-tension circuit was shorted through the connection on the magneto machine touching the cover. I also know of a similar case, in which the magneto cover prevented the machine from starting at all. The remedy is simple: cut the cover so that the shorting is impossible. H. E. W. IREMONGER.

Two-speed Gears and Free Engine Clutches.

[3215.]—With regard to your advocacy of speed gears, on rare occasions when I have been stopped on a stiff hill I have humbly run down again and made another start. This little inconvenience has always appeared to me preferable to trouble with speed gear complications. H. P. B.

[3216.]—In answer to Mr. Fawcett's letter [3155] asking for experience of change-speed gears, I should like to say that I also think replies from users would be most instructive, and have been hoping to see a number of letters on the subject.

My own experience dates only from the summer of 1906, when I started to ride a 3½ h.p. Quadrant. Convinced from the first that some form of change-speed gear was highly desirable, I fitted a well-known form of expanding pulley. Although this was not completely satisfactory, it served amply to confirm my opinion. Discarding this pulley, I next fitted the N.S.U. two-speed gear, for which I have nothing but praise.

To my mind, those who think change-speed gears unnecessary must either confine themselves to well-made high roads or else encounter the certainty of exertion and risk that no wise rider would willingly undergo. At any rate, this is so in Devon, where hills are steep and roads narrow and winding; in the Midlands it may possibly be different.

In any case, a reliable change-speed gear enables one to go anywhere in any weather, and is therefore essential for general touring purposes. I may add that I have now used the gear for about 2,000 miles.

In conclusion, I ought to say that while awaiting delivery I used a plain pulley a good deal, including a run from Exeter to London, so am not entirely without experience of the other sort. I enclose my card, and remain a grateful reader. T 673.

1908 Specifications.

[3217.]—A very cursory review of your Buyers' Guide is sufficient to make clear a few interesting points. It shows up very clearly, for instance, those details in the specification of motor cycles on which all the chief makers are agreed, such as the superiority of belt transmission and magneto ignition, to mention only two. On the other hand, it also shows up none the less clearly, by the diverse opinions held by the various great firms, matters in which perfection is still very far from attainment. Perhaps in nothing else is this diversity more apparent than in the matter of length of wheelbase, where the figures given range roughly from 51½in. to 60in. But the question of the relative merits of short and long wheelbases is, in my opinion, a most important, though at present, I think, a rather neglected, one. It may be that, when the problem of variable gears is at length put on a fairly satisfactory footing, the present cumbersome method of trusting entirely to steel-studded tyres and similar contrivances as a preventive of skidding will be considered inadequate, and the whole matter be more thoroughly studied than is now the case.

As regards the abnormally long wheelbase, I am inclined to agree with its supporters when they assert that it diminishes vibration and gives ample room for various accessory mechanism. But are not these after all, especially since the introduction of spring forks, very subsidiary matters? The prevention of skidding in motor cycles seems, however, to be a matter of prime importance—one of those which must be considered and provided for in the whole construction of the machine. Now, when a cycle, either pedal or motor, is in the act of turning a corner, say on a greasy road, we have at the moment of turning a condition in which the fore wheel is directed by the rider, while the rear, being far removed from direct control, in following it has still a considerable tendency to continue in the original direction. Here we have the circumstances which give rise to side-slip. Now with a very long wheelbase it seems to me that this tendency must be much increased owing to the relatively longer distance the base of the rear wheel lies from the rider's control and in the case of a machine of such weight as a motor cycle owing to the momentum due to its weight, which must also be thrown into the scale at the instant of turning to swing as it were, the rear wheel in the direction of the original course. It results from the application of the law of centrifugal force: the fore wheel is for the moment the fixed point, and the rear wheel tends to be driven along the periphery in a circular motion about it. In the case of the short wheelbase, however, not only is the rear wheel, as were, more within the immediate sphere of control of the driver, but the distance from centre to periphery—in other words, the wheelbase—being so much less, the tendency to swing is also much less in evidence. On the whole, therefore, I consider the foregoing points serious drawbacks to the use of the abnormally long wheelbase, and shall be interested to learn the editorial opinion and also any remarks which the above may elicit from your readers.

DR. A. R. G.

[The editorial opinion is that length of wheelbase has very little to do with the question of side-slip. The tendency of a motor bicycle to skid sideways on greasy roads is governed more by distribution of weight, size of tyres, ratio of gear between engine and driven wheel, size of engine, number of working strokes to each revolution of engine, and force of explosion.—ED.]

Motor Taxation.

[3218.]—On picking up the *Birmingham Mail* of the 23rd March I noticed the Midland Chambers of Agriculture held a meeting on the 21st ult., when, along with other matters, motor taxation was discussed. It was considered that users of motors of all kinds, and particularly heavy and trail motors, should contribute something substantial towards the maintenance of the roads, and a resolution was passed, desiring to urge upon Mr. Asquith to allocate funds raised by his contemplated motor tax to the maintenance of the main roads.

Now is not this just what all motorists say about the matter, and do not motor cyclists already contribute too much to the national exchequer, and see nothing for it? What amuses me is that the heavy motor waggons and all commercial vehicles (motor) which are wearing away the roads and bringing in profit to the owners escape free. Does any one consider this fair?

I should like to suggest that in the event of legislation going against motor cyclists, the A.C.U., or some responsible body, start a petition in favour of motor cyclists (not heavy tricars and light cars), who cannot possibly do any appreciable damage to the roads, and send out forms for all motor cyclists to obtain signatures from responsible persons who would be in favour of same (the more non-motorists the better), and see if anything cannot be done, as this is supposed to be a free country.

Why not impose a small tax, say half a crown a year on push cyclists, and so considerably increase the revenue? I should not grumble at this, as I use a push cycle nearly all the year round, and consider I wear the roads as much this way as when motor cycling. I hope some agitation will be started before it is too late. O 2024

The Balancing of Petrol Engines.

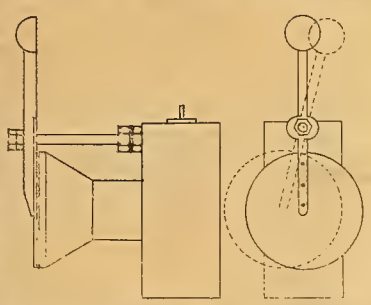
[3219.]—I have been much interested in the correspondence on the subject of balancing, which is being discussed in your columns. May I add my word to the discussion?

It is pretty well known that it is impossible in a single cylinder engine to balance perfectly the reciprocating weight by means of revolving weights, though if the engine were run at a constant speed a nearer approximation could

obtained. However, until the advent of the automatic infinitely variable gear, we must run our engines at varying speeds. The same remarks apply to the V-type of twin-cylinder engine—the increased smoothness of running being due, not to better balance, but to the increased number of power strokes. But there is at least one other type of motor cycle engine available—a type which seems to me an advance on all others on the market in the matter of balance. This is the twin engine with cylinders opposed and cranks at 180°, and I cannot understand why more designers do not place their second cylinder in a position where it will render balance weights unnecessary, and yet give a better balance as well as a more even distribution of power and idle strokes than the V type. I know that popular opinion is still against the horizontal cylinder and outside flywheel, but I think that most people who have had experience with these will agree with me that they are absolutely practical in use. The absurd accusations against the horizontal cylinder do not appear to be in evidence just now, but since the outside flywheel is at present a subject of discussion, I must say that I have never experienced any one of the three accidents which befell T. F. Cox, as related in his letter [3177]. My experiences have been obtained from the little Fairy, and for those who like light weight with medium power I do not think this machine can be beaten. R. M. S.

Air Shutters.

[3220.]—The illustration and description of the air shutter which appeared in a recent issue of *The Motor Cycle*, has been very useful to me, and I hasten to make my acknowledgments. I have a Raleighette tricar with Zafnir carburetter. To ensure a certain start it was necessary to exclude all air by holding one hand over the funnel of the main air inlet This was an awkward thing to do, and hampered one's movements when swinging the starting handle. A convenient hot air connection afforded support for a pivot on which to hang the shutter, and a counter weight now trips the shutter when released by the vibration of the engine, thus admitting air immediately the engine starts. It is a convenience I would not be without now I have realised its merits.



V. A. HOLROYD.

Variable Gears on Lightweights.

[3221.]—I have read letter No. 3169 in reference to variable speed gears on lightweights, also opinions on outside flywheels. In my opinion variable gears are not needed as they add to complication, and as the lightweight machine of the future is to be as simple and reliable as possible, it will be useless to fit variable gears.

I may say I designed one of the lightest twin opposed motors, weighing 12 lbs. complete with silencer and flywheel. This engine was taken up by Light Motors, Ltd., and called the Fairy. I fitted a metal to metal clutch and free-engine to this machine, but when it got on the market we found that there was no desire for it, for when adjustments were required it did not get them. There is no doubt if a clutch could be designed that would not require adjusting and would not wear it would be very nice.

The best substitute for variable gears on lightweights is to have a light twin engine of the opposed type such as the Douglas. With such an engine you get an impulse every revolution, and with the latest twin-cylinder magneto you get your machine started at a speed of four miles per hour. This is easily understood from the following: A single-cylinder engine with a gear of 6 to 1 only gets three impulses for one turn of the road wheels, whereas a twin engine, horizontal or vertical, and a 6 to 1 gear, gives six impulses for each turn of the road wheel; this makes starting very easy. It also tells on hills, as the engine picks up very quickly. I must say that I cannot speak too highly of the D.A.I.V. Bosch magneto for lightweight motor cycles.

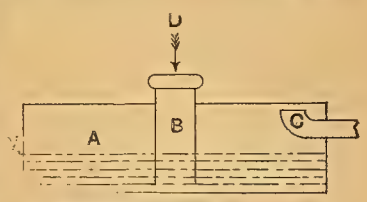
I should like to say a word or two about outside flywheels, as there has been so much talk about them. It appears to me that most of your readers overlook the fact that outside flywheels on single-cylinder engines of, say, 80 × 80 mm., run very near the ground. The flywheel of the Douglas is 10in. in diameter, and weighs about 14 lbs. It is fitted on the recognised standard taper of five degrees and a cast steel feather let into the crankshaft, which is hardened and ground true to gauge. This is the only way to ensure a perfect fit. A flywheel of this size and weight on a 2¾ h.p. makes it run very steadily. It is balanced by a special method, and is provided with an oil catching ring to prevent it throwing oil.

It would be a great convenience if makers would give the speed at which their engines develop full power. For instance, some single-cylinder engines of 1¼ h.p. are stated to have a cylinder capacity of 64 × 70 mm., whereas others with the same capacity are called 1¾ h.p. The Douglas twin-cylinder develops 2¾ h.p. at 1,600 revolutions per minute.

J. BARTER.

Exclusion of Dust.

[3222.]—In your leaderette referring to the above matter you quite overlook the simplest and most practical way of entirely excluding the dust from the air supply, viz., taking the air through water. I subjoin a rough sketch of a device which I found most successful, and one would scarcely believe the amount of mud that can be cleared from the tank after a few months' use. Result: Total exclusion of dust and resultant longer life of wearing parts of engine. This need only be small for motor cycles, as reduction of size only necessitates more frequent change of water.



A. Shallow water tank.
B. Pipe reaching almost to bottom
C. Air supply to carburettor.
D. Air and water supply to tank.
W. Water level.

ALFRED WRIGHT.

Consumption Trial Formulæ.

[3223.]—As one interested in all formulæ by which the relative merits or demerits of motor cycles may be demonstrated, either in hill-climbing propensities or as a test of economy in petrol consumption, permit me to say that I read with interest the report of the paper read by your contributor, Mr. H. H. Charge. After his criticism of another formula, I naturally expected that he had a grasp of the subject and realised the difficulties of drawing up a satisfactory formula based upon the relative weights of machines and riders or the sizes of the motors driving them, but on examining the nature and workings of the formula presented by him, I realised that my expectations were only to be doomed. The formula he advocated was weight of rider multiplied by size of engine (and it does not matter if the size be designated by either inches, millimetres, centimetres, or nominal horse-power based thereon—the relationship is the same); the product divided by weight or measure of petrol used—the resultant lowest figure giving figure of merit.

When I work it out I find that, all other things being equal, a 5 h.p. is allowed twice as much petrol as a 2¾ h.p.; and further, all other conditions equal, a ten-stone rider on the same sized machine would have to travel twice as far as a twenty-stone rider, or only use half the petrol, to have the same figure of merit. Which, as Euclid says, is absurd.

EXAMPLES.

Weight. H.P.	Weight. H.P.
$\frac{160 \times 5}{16} = 50$	$\frac{100 \times 5}{10} = 50$
Petrol.	Petrol
$\frac{160 \times 2\frac{1}{2}}{8} = 50$	$\frac{200 \times 5}{20} = 50$

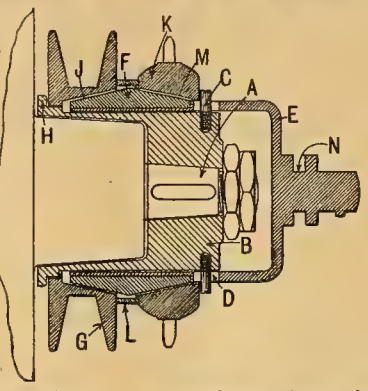
H. WHEATER.

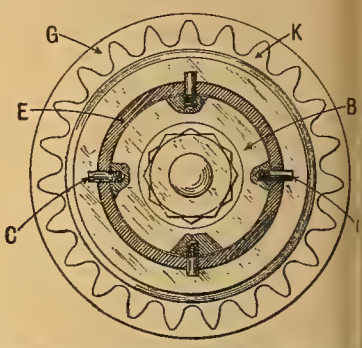
"Lover of Fair Play" (Edinburgh). We do not publish anonymous letters.

RECENT PATENTS. By ERIC W. WALFORD, F.C.I.P.A.

A Two-speed Gear and Clutch.

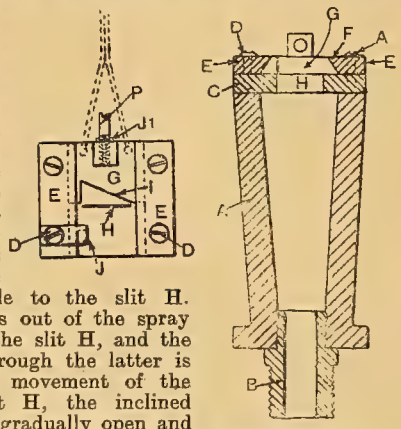
THIS is a simple construction adaptable to existing machines, and is the invention of Mr. J. H. Calvert, of Temperance Hall, Easton, S.O., Yorks. To the engine crankshaft A is fixed a sleeve B. From this sleeve project a number of radial pegs C. These pegs C pass through slots D in a sliding clutch sleeve E, which is mounted to slide on the first sleeve B. This clutch sleeve E has fixed to it a clutch member F comprising a double cone—that is to say, a cone which slopes in both directions. Free to rotate upon the first sleeve B is the belt pulley G, which has a suitable bearing on the sleeve and abuts against a flange H formed thereon. The interior periphery of the belt pulley is coned, as at J, to correspond with one face of the sliding clutch member F. Mounted upon the sliding sleeve E is a chain sprocket K, which bears up against the radial pegs C on the one side and a distance ring or separator L lying between it and the belt pulley on the other side. The interior periphery of the chain sprocket is coned, as at M, to correspond with the other face of the sliding clutch member F. In the belt pulley G lies a belt, which is carried round a belt pulley (not shown), fixed to the driving wheel or the like, whilst the chain sprocket similarly communicates with a chain sprocket on the back wheel, as through a countershaft It will be seen that when the clutch member F is in its midway position, the engine is allowed to run free in regard to the pulley or sprocket, or the latter may overrun the engine crankshaft. Thus a "free engine" is provided, and the machine allowed to coast without the engine running. Moving the sliding clutch sleeve in one direction locks the belt pulley to the fixed sleeve, and thus to the engine crankshaft. It is preferable that this provide the high gear, so as to take advantage of the relatively high belt speed. To obtain the low gear the sliding clutch sleeve is moved in the opposite direction to release the belt pulley and lock the chain sprocket to the sleeve B fixed to the crankshaft. Any suitable means may be employed for sliding the clutch sleeve, by a fork in the groove N, operated in a convenient manner.

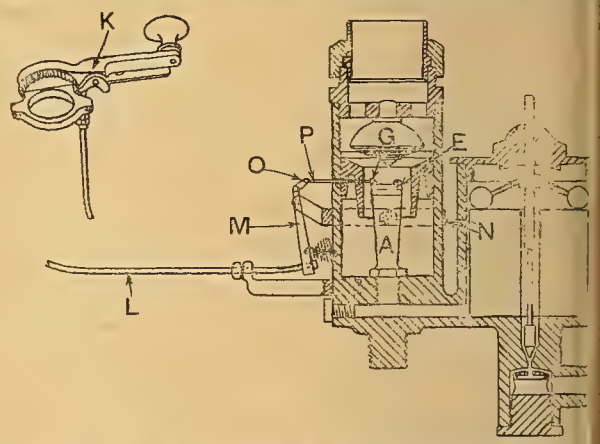




A Variable Jet.

THIS is the invention of Mr. H. Holland, of Milton Avenue, Highgate, N., whose object is to provide a jet having a variable orifice, which may readily be fitted to existing carburetters. At its narrower end the jet A is internally threaded to receive a threaded adapter B, whereby the jet may be adapted to different carburetting apparatus. Connected to the wider end of the jet A is a flat plate C, having secured thereon as by screws D two guides E forming a dovetailed groove F for a slide G. Through the plate C is formed a slit H, and the slide G has one of its edges I cut so as to be disposed at an angle to the slit H. The petrol must pass out of the spray tube A by way of the slit H, and the flow of the fluid through the latter is readily variable by movement of the slide across the slit H, the inclined edge I operating to gradually open and close the slit. Movement of the slide in either direction is limited by stops such as J J^1, and to effect such movement any means may be adopted which will allow fine adjustment of the slide to be effected. The arrangement shown consists of a pawl and ratchet controlled lever K for operating

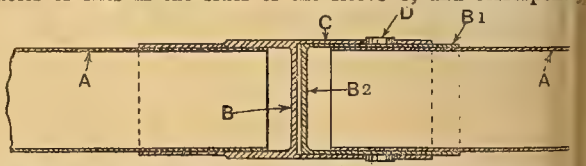




Bowden wire L connected to a spring controlled lever pivoted intermediate its ends to a clip N fastened round spray chamber. The lever M is connected by a link O to connection P attached to the slide G.

A Detachable Air Tube.

THIS is the invention of Mr. A. E. Green, of the well-known firm of F. Reddaway and Co., Ltd. The air tube A is of the desired diameter and of length to fit snugly around the wheel rim, each end of the tube being sealed to make it impervious to air pressure. A valve is provided for inflating the tube, and the tube is capable of retaining the air pressure by means of its sealed ends. One of the ends of the tube is sealed with an extending sleeve C, having the disc B formed about midway therein. The other end of the tube is sealed by means of a sleeve B' terminating in a disc B^2. This end is disposed within the projecting sleeve or socket C, so as to form temporarily an endless ring of the requisite diameter. Means may be provided to temporarily lock the inserted sealed end B' of the tube within the sleeve C. This could be effected by providing holes or slits in the sides of the sleeve C, and corresponding projections D on the sides of the sleeve B' of the air tube inserted in the sleeve C, so that the projections would pass through the holes and tend to prevent displacement of the inserted end of the tube.



TRICARS FOR SALE.

3 h.p. Humber Tricar, chain driven, a handy little runabout; £15.—Wauchope's, 9, Shoe Lane, London.

HOBART Tricar (4½ h.p.), good order; £25, or exchange.—Templeton, 535, Sauchiehall Street, Glasgow.

TRICAR, 5 h.p. Rexette, two speeds, water-cooled, splendid condition, £28.—25, Linwood Road, Handsworth, Birmingham.

2¾ h.p. Kerry Tricar, single speed, is sufficiently powerful to take two up a steep hill without pedal assistance; £10 10s.—Wauchope's, 9, Shoe Lane, London.

HUMBER Tricar, 4 h.p. engine, Fit-all two-speed gear, in splendid condition; trial given. — Hulbert-Bramley Motor Co., 96, Upper Richmond Road, Putney.

REXETTE, 5½ h.p., open sprung frame, comfortable, powerful, quiet, perfect condition, accessories; £30 cash; must sell. — 28, Mountpleasant Road, Lewisham.

BARGAIN.—12 h.p. Lagonda twin-cylinder tricar, water-cooled, three lamps, horn, and three accumulators, perfect condition; £45; owner going abroad.—Hoebye, 3, Cursitor Street, Chancery Lane, E.C.

6 h.p. Twin Rex Litette, free engine, water-cooled, Simms-Bosch magneto, fitted Brooks studded tyres, in perfect running order, suitable for commercial or pleasure; price £50.—Victoria Garage, Park Side, Coventry.

6 h.p. Singer, water-cooled, two-speed, double front seat, coach-built, two spare covers and spare sprocket wheel for back, good condition, just overhauled, fast machine; price £50; owner buying car.—Apply, W.G., 51, Belsize Road, N.W.

5 h.p. Kerry-Abingdon Tricar, twin-cylinder, free engine, two speeds, chain drive, bucket seat, wheel steering, car tyre on back wheel, excellent condition, new in June last; price £50.—Apply, A. Gouldbourn, High Street, Market Drayton.

TRICAR, 6 h.p. Stevens twin-cylinder engine, water-cooled, Chater-Lea fittings, frame F type, two-speed gear, large clutch, internal expanding brakes, etc., lamps, and spares; £65; photo.—Brine, Clarisbrooke, Chelmsford Road, Woodford, Essex.

1907 8 h.p. Wolf, twin-cylinder, three speeds, coach-built, double front seat, fast, climb anything, spares, and accessories, enamel and plate good as new; any trial; particulars willingly; cost £120, bargain, £60.—Beach, Beaconsfield Road, Dover.

QUADRANT Tricar, 6½ h.p., 1907 model, perfect condition; cost £95 cash, without extras; scarcely ever used, owing to illness; reasonable offer entertained.—Particulars, photo, and appointment for trial, write, Ashmere, Queen's Road, Hazel Grove, Stockport.

TRICAR, Chater-Lea, Fafnir engine, 3½ h.p., cane basket seat, Nonpareil change gear, in good running condition, new carburetter, tyres good; £10, or will exchange for light motor bike of good make. — Charles Veals, 9, Waterloo Street, Weston-super-Mare.

LAGONDA Tricar, 9 h.p., two speeds, good hill-climber, Grose band on driving wheel, complete with spares, new accumulator, in splendid condition; trial by appointment; good motor cycle in part exchange not objected to; price £42.—White, chemist, Beaconsfield.

10-12 h.p. Lagonda Tricar, three speeds, non-skids on all wheels, open frame, wheel steering; this is a 1907 tricar, and the very best tricar ever offered; it is beautifully controlled, and is fitted with two ignitions; price £65. — Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London.

ZENITH Tricar, latest model, only used for few trial runs, re-enamelled and re-plated, thoroughly tuned up, 6 h.p. twin-cylinder Jap engine, chain drive, list price 72 guineas nett cash, accept £55 (lowest); exceptional opportunity.—Zenith Motors, Ltd., 119, Stroud Green Road, Finsbury Park.

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We can supply all parts for 2¾ and 3½ h.p. F.N. Engines.

"VINDEC" Adjustable Pulleys for 2¾ h.p. F.N. Engines, 10/- each.

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Belt Fastener,

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"ARCTIC" FANS. Enclosed type. Thousands in use. Testimonials from all parts of the world. H.S.H., TASMANIA: A most successful Fan. (TWO YEARS IN USE.) S.D.S., JOHANNESBURG: Gives every satisfaction. (18 MONTHS IN USE.) S.H.D., DROGHEDA: Can run on low gear any length of time. H.J. LEIGH: I would not drive without Fan. Wm. C., IPSWICH: Well pleased with investment. W.S., BLACKHEATH. Power greatly increased. Numerous others. Originals can be seen. 30/- to 62/6. Scientifically designed. Silent frictionless bearings. Flexible connections. Readily fitted. Many in use on mail cars. JOHN CHAPMAN & CO., Finchley Road, Child's Hill, N.W.

TRICARS FOR SALE.

SOCIABLE Tricar, 5½ h.p., three speeds, w.c., perfect.—Frisby's, Wells, Som.

4½ h.p. M.M.C. Tricar, two speeds, Chapman's double fan; £25. — Garty Balham Hill.

TRICAR, 4½ h.p., coach-built body, two speeds, free engine; £28.—56, Mirabel Road, Fulham.

£14.—3 h.p. Rex Tricar, coach built front seat, Palmer tyres. — Jones, ironmonger, Lichfield.

QUADRANT Carette, 6 h.p., two-cylinder, splendid order; 40 guineas.—Spensley, Chertsey, Surrey.

5½ h.p. Rex Triette; £30; splendid condition, fully equipped, spares. — Banbury, photographer, Swindon.

DE DION, 4½ h.p., water-cooled, chain-driven, two speeds; £40, worth £60.—Smith, Bronshill, Burnell Road, Sutton, Surrey.

£45.—8-10 h.p. tricar (Rexette), perfect condition, tyres all sound, lamps, tools; trial.—12, Cambridge Street, Sheffield.

REXETTE, 8-10 h.p., three seats, two speeds, excellent condition; cash offers.—Stanley, 10, Wexford Road, Balham.

WHY not a Phœnix Quad? More reliable than a tricar, and more economical in running than a car; seen under Cars.

3½ h.p. Genuine De Dion Tricar, Mills-Fulford forecar, good condition Clinchers; £25.—Barrett, 332, High Street, Manor Park.

3 h.p. Humber, chain drive, upholstered seat, perfect order; £15, or motor bike part. — Hart, 31, Vanguard Street, Deptford.

5 h.p. Humber Tricar, latest pattern, open frame, wheel steering, many extras, equal new; £49 10s.—2, Albert Hill, Bishop Auckland.

6 h.p. Singer Tricar, won Haslemere medal 1907, just overhauled by Riley's at cost £12; particulars, stamp; £55.—Brookes, 5, Granville Road, Leicester.

HUMBER Tricar, only run few miles cost £75, bargain, £30; also Sunbeam Mabley runabout, 3½ h.p., De Dion, £30.—H., 112, New King's Road, Fulham.

PEUGEOT Tricar, 7-9 h.p., twin, Chater. Watawata, studded tyres, almost new, fast, reliable; 25 guineas.—Phillips, 3, Bexhill Terrace, Merton Road, Wandsworth.

ROVER Tricar, 4½ h.p., splendid machine, two speeds, car tyres, lamps, spares; £35, or exchange for powerful magneto bike.—Foster, All Saints Street, Bolton.

4 h.p. Wearwell Tricar, water-cooled Bozier two-speed, splendid condition; £26, take good 3½ h.p. motor cycle and cash. — George, 18, Ferncliff Road, Dalston, London.

3½ h.p. Tricar, four-speed pulley, wheel steering, engine as new, two accumulators; cash £18, or would accept good furniture in exchange. — B.C., 1, Thirsk Road, Clapham Junction.

REX Triette, 5½ h.p., twin-cylinder, as new, in perfect order throughout, fully equipped with spare valves, accumulators, belts, tools, etc.; photo; trial; £27.—22, Victoria Terrace, Leamington.

4½ h.p. Water-cooled De Dion Tricar Chater-Lea wheels, frame, and two-speed gear, chain drive, driver in front, like car, two bucket seats; £35.—J. Lyon Grove House, Thornhill Lees, Dewsbury.

9 h.p. Riley Tricar, 1907 model, in first rate condition, spare cover, with Brooks non-skid band, unused, spare chain, unused, and many other spares, satisfactory reason for selling; £80, or reasonable offer.—Alex Harkness, Friar's View, Jedburgh, N.B.

4½ h.p. Stevens, water-cooled, Chater Lea open frame, 9in. clutch (Chater-Lea), gearbox, two speed (Chater-Lea) side lever, wheel steering, Peter-Union tyres, bucket seat, faultless; any trial. £40; will take furniture to £20.—Lawrie 15, New North Road, N.

TRICARS FOR SALE.

ROVER, 3½ h.p., perfect order, reliable tourer, numerous spares; £17.—41, Sydenham Park, Sydenham.

CHATER-LEA, Givaudan, 4 h.p., water-cooled, chain drive, three-speed gearbox, coach-built, Peter-Union tyres, non-skid back, absolutely like new, not run 100 miles; £40, or motor cycle and cash.—3, St. Peter's Road, Kingsland, London.

4¼ h.p. Phœnix Trimo, magneto, spring frame, coach-built car, two speeds and free, handle starting, tyres nearly new, Continentals front, non-skid back, thorough order, good accessories; trial run by appointment; £33. — Cornish, chemist, 187, St. Ann's Road, South Tottenham. 'Phone, 1790, Tottenham.

STAMFORD HILL.—5 h.p. w.c. Oppermann three-speed tricar, overhauled, plated, and enamelled like new, £35; 4½ h.p. two-speed Phœnix Trimo, overhauled, plated, and enamelled like new, £32 10s; 4½ h.p. Kelecom, £22; 3½ h.p. M.M.C., £10; 3½ h.p. Rex, Millford front, £15; all bargains and guaranteed; trials.—128, High Road, Tottenham.

RILEY Tricar, 9 h.p., 1907 pattern, double front seat, Dunlop tyres, massive luggage carrier, special toolbox, acetylene headlights and generator, electric tail light, three accumulators, spare steel-studded cover (brand new), inner tube, two spare chains (new), many extra fitments and accessories, fast and powerful machine, guaranteed splendid order; any trial; exceptional opportunity; £65, carriage paid.—Archibald Briggs, Panmure Street, Dundee.

6 h.p. Rexette, open sprung frame, extra strong springs fitted, back wheel rebuilt to take 700 by 90 tyre, geared wheel steering (not direct), steering wheel control, enclosed front seat, with side entrance door, automatic air inlet, extra strong Brampton ⅜in. chain and sprockets (not the usual ½in.), tyres all Michelin, in good order, painted red, lined black and white, looks like new, very fast, will climb any hill, everything in good order, most reliable; £45; can be seen and tried any time. — Salter, Easton, Lymington, Hants.

SIDECARS AND FORECARS.

FORECAR, less engine and tyres, wicker, upholstered; £5.—Seeman, St. Chad's, Ealing.

CHATER-LEA Sidecar, new, 26 by 2½ Palmer cord; £8 10s.—20, Gods on Road, Croydon.

SIDECAR, rigid, left side, 26 wheel, new condition; £4. — 202, Southampton Street, Camberwell.

SIDECAR, convertible trailer, new, £5 10s.; particulars, stamp.—Wellesley Works, Rake, Hants.

MILLS-FULFORD Forecar Attachment, almost new; cost £16, sacrifice £7. —27, Pitfield Street, Hoxton.

SEVERAL Side and Forecars, cheap. Send requirements, or 1d. stamp for list.—Farrar, Square Road, Halifax.

SAFE Rigid Bamboo Sidecar, wheel and tyre complete; £4. — Grimsdale, Kingswear, Little Park Gardens, Enfield.

BROWN Forecar, cushion and apron, complete, good condition; £5 cash only.—Garaged at Romford Motor Works, High Street, Romford.

MONTGOMERY Sidecar, 26in. by 2¼in. Continental, cane seat, plated springs, good condition; £5.—Robson, Avenue Road, Scarborough.

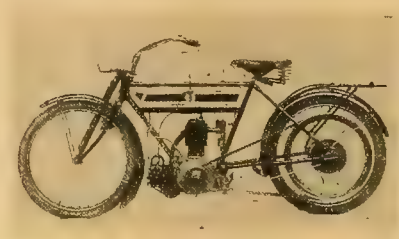
SIDECAR, Ariel, rigid, Liberty tyre, 26 wheel, fit any frame, upholstered, cane body, apron, cushion, all in good condition; cheap, £4 10s.—1, Lane Ends, Hapton, Burnley.

3¼ h.p. Rex, with Phœnix forecar, with all spares to convert to motor cycle, tyres as new, powerful, spray; trial given; £18.—F. Applebee, Church Hill, Walthamstow.

COACH-BUILT Forecarriage Attachment, long side stays, 26 by 2½ Palmer cord tyres, band brakes; 90s., or exchange two-speed and free engine. — 24, Ryland Road, Kentish Town.

AN IMPROVEMENT ON PERFECTION!

The "Triumph" is a perfect specimen of British design and workmanship. Of that there is no doubt whatever. **BUT** the addition of **THE PREMIER TWO-SPEED GEAR** with ROC (Licensed) **INTERNAL EXPANDING CLUTCH** improves it immensely. Here is the photo of one which we lately fitted:



It improves ALL machines with regard to the following important prints:—

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It can be fitted to **ANY** machine, no matter what power, new or second-hand.

We are sole manufacturers of the **WARWICK** motor bicycle in which the Clutch and Gear are incorporated in an ideal manner.

Please let us give you all particulars.

The PREMIER MOTOR CO., LTD., ASTON RD., BIRMINGHAM.

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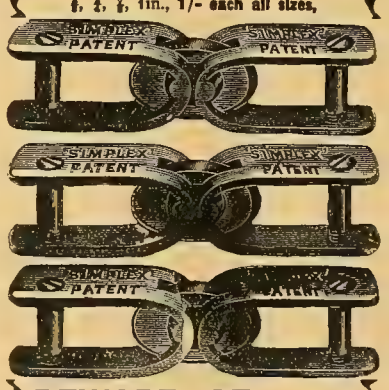

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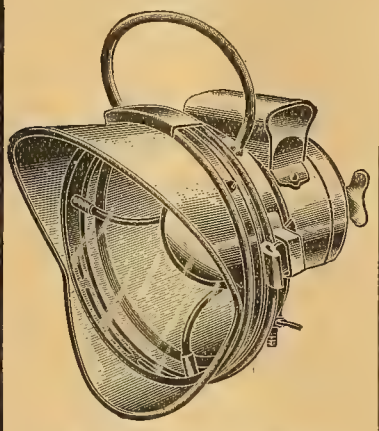

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9 h.p. Bat, magneto, free engine, must be in good condition; good price given. — Box No. 9,549, *The Motor Cycle* Offices, Coventry.

WANTED, Humberette front wheel and spindle, 700 by 65, large driving bevel wheel to suit Humberette. — Busfield, motorist, Batley.

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WANTED.

WANTED, Tricar Chassis, also No. 6 Chater frame.—668, High Road, Leytonstone.

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WANTED, Palmer Cord 26 by 2 beaded tyre; approval.—R.G.B., 54, Florence Road, Stroud Green, N.

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WANTED, Motor Cycle, for cash, not earlier 1906; cheap; full particulars.—17, Cranmer Road, Brixton.

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CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card. — Address, "The Cycle and Motor Trades' Review" Offices, Coventry.

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INVENTED BY

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and described in "*The Motor Cycle*," Oct. 30th, 1907, and March 18th, 1908, is now being placed on the market.

The locking arrangements shown, although good, were not simple enough, and are already obsolete. A much simpler and stronger method of locking is now being used. The pulley has been under trial for over two years and is now a thoroughly reliable and efficient piece of mechanism. There are fourteen positive speeds ranging from 6 to 1 up to 2¾ to 1, and two sizes.

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"I hope to put it through a variety of severe tests."—E. D. FAWCETT.

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"The pulley is as good as new, and has given me **complete satisfaction** both in respect of its absolute reliability and ease of handling."—E. D. FAWCETT.

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FARRAR wants sidecars in exchange for new £10 10s. gents' cycles, guaranteed 12 months.

FARRAR. — Send for my price list, pounds saved; sole agent Premier accumulators. — Farrar, Square Road, Halifax.

CHARGING Boards, complete, from 7s. 6d.; write for prices.—Frank Schofield, 15, Whitefriars, Chester.

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MAYFAIR Accumulators, guaranteed; 15 a.h., 10s. 6d.; 20 a.h., 15s.; 40 a.h. 25s.—Fellows, Hertford Street, Mayfair.

CHEAP Motor Cycle Houses; catalogue sent free.—Portable Building Company, Felsham Road, Putney, London.

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YOUR New Mount is incomplete without the Advance adjustable pulley; £1.—Advance Motor Mfg. Co., Ltd., Northampton.

EVERYTHING Made in cycle tanks except a fortune. Write for prices. —A. Phillips, 2, Strathnairn Street, Bermondsey.

5 h.p. Forman, carburetter, 40 amp. accumulator; can be seen running; £7 10s.—359, St. James's Road, Old Kent Road, S.E.

STANLEY-DERMATINE Belting, new, two-piece belts, ⅜in., 6s. 5d.; ½in., 7s. 5d.; ⅝in., 8s. 5d.; 1in., 9s. 5d.; carriage paid.—Below.

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THE MOTOR CYCLE

Vol. 6. No. 263. April 8, 1908.

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The Motor Cyclists' Ideal.

AS promised in this column last week, we now have pleasure in giving a few rough particulars we have been able to collect while checking and tabulating the replies to the first three queries on the form issued with *The Motor Cycle* of March 18th.

One of the most interesting points in connection with the replies is the very large number of readers who are in favour of a twin-cylinder motor bicycle. Of course, the predominating desire is for a single-cylinder engine; nevertheless the twin-cylinder figures came as somewhat of a surprise to us, not that we look upon the twin-cylinder with the slightest disfavour, but we certainly did not realise that twin-cylinder machines were so much desired. It is also surprising what a large number of twin-cylinder enthusiasts desire a powerful, and consequently a heavy, machine in comparison with those who favour the lightweight. Those in favour of a single-cylinder engine of comparatively large dimensions are enormously in excess of those requiring a machine fitted with any other engine, either multi or single-cylinder, but doubtless the demand for engines of smaller capacity will increase during the year, particularly when it is further shown by constant public performance that such machines are capable of satisfying the exacting requirements of prospective purchasers.

Our constant advocacy of change speed gears for motor cycles, both editorially and through contributors, has been fully confirmed. Without publishing figures, which we intend to hold back until the whole of the replies to the questions have been carefully gone through, we may say that we have divided motor bicycles into seven separate headings, which embrace the whole of the various machines on the market without sub-dividing them so minutely that the figures would be practically useless. Sub-divide under these seven headings, we find that no matter whether the motor bicycle desired is to be fitted with a single-cylinder engine of extremely small dimensions or with a multi-cylinder engine of large dimensions, the answers in all cases prove that the majority are in favour of a change speed gear. We make no secret of the fact that many of the replies show that there is a considerable amount of doubt in the minds of readers whether there is a perfect change speed gear on the market. Still, the fact remains that the majority will have one, almost irrespective of cost, when a gear has proved itself absolutely reliable and efficient. This information will, no doubt, be of service to those makers who are not fitting a two-speed gear, and cause those who are either making or fitting a two-speed gear to increase their efforts to improve existing patterns, also to exploit what is undoubtedly required but difficult to obtain.

In our next issue we hope to be able to give some further interesting rough notes from the statistics we are compiling, and we trust our readers' patience will not be tried too sorely if we ask them to wait a few weeks for the tabulated list of percentages upon which our staff is at work, and which we referred to last week as being a task which could not be handed over to an ordinary clerical staff to tabulate. These percentages will be found to be one of the most interesting features ever published in *The Motor Cycle*.

A Few Days in the Pyrenees.

By G. J. C.

THE General Steam Navigation Company's boat, the *Grive*, was advertised to sail from London to Bordeaux on the 17th August, 1907, at 3.30 p.m. As the clocks struck the half-hour a quiet voice somewhere overhead said, "Let go forrard." Simultaneously a cry went up, "Man overboard," and we were delayed some minutes while a belated stoker was fished out of the water.

On the second day out the saloon was somewhat empty at meals, but on the whole the trip was smooth and pleasant, and this way South is to be recommended.

A talk with "Chips" resulted in a piece of wood being securely fastened to the handles to carry my faithful Sanderson camera, and a larger one on the luggage carrier took a heavy bag comfortably.

Although I was a tricarist, I made this tour on a brand new Rip spring frame 3½ h.p. pedalless motor bicycle fitted with a two-speed gear, which had hardly been on the road, and was not fully tuned up. I might at once say that I had no trouble either with the engine or tyres. The only involuntary stop was caused by a broken luggage carrier, although a gummed up exhaust valve caused some few minutes' delay in starting on one occasion.

A few words with regard to my outfit may be of interest. A full set of tools, repair outfit, and spare inner tube were carried. With the camera I used Houghton's new plate and film envelopes, which were a great success. For personal use a rainproof coat, a dust coat, spare linen, sleeping and washing gear, *and* a pair of trousers. The latter are invaluable, as, apart from appearance, their comfort after a long ride in breeches and leggings is very great.

I trained from Bordeaux on the morning of the 20th to Biarritz, and the first ride was undertaken from there. After filling up with petrol, which I had no difficulty in obtaining, the motor started up at once, and I ran quietly out of Biarritz on the high road to Spain. About a mile out I narrowly missed a car through a momentary forgetfulness of the French rule of the road, and for a few miles drove easily while accustoming myself to the new mount. After a time the healthy sound of the engine and the fine road were too enticing. In a few minutes (so it seemed) St. Jean de Luz, a pretty little place by the sea, was reached. After taking a snap shot I rode for the frontier, intending to go on to St. Sebastian. The Spanish Customs I found to be very troublesome, and finally the motor

Gateway into Fuentarrabia. Two thoroughfares in Fuentarrabia (Spain).

A Few Days in the Pyrenees.—

bicycle was left at the French frontier, and the train taken to Irun, where I lunched and missed the connection. The waiter promised to warn me when the

A view in Lourdes.

train would leave, but—"to-morrow" is Spain's motto. The mischance turned out fortunately, as it led to my walking from Irun to Fuentarrabia—a place well worth visiting. This is said to be the most Spanish of all Spain's northern towns. Those interested in history will remember it as the scene of Wellington's triumph over Soult.

Heading for the Pyrenees.

After spending a few days at Biarritz with friends, the real tour began in a run over the fine direct road from Bayonne to Pau, some sixty miles. Bayonne itself is well worth seeing, some of the small streets having arcades similar to those at Chester. A curious window and rather florid cloisters form the interest of the Cathedral. Pau, with its terrace and big hotels, is conventional, and I was not sorry to leave. Following the Bagnères-de-Bigorre Road for some miles, a fork to the right leads to Lourdes. Chickens swarm all over the roads in the villages, and I rather fancy someone had roast fowl cheap that day.

At Lourdes one is struck by the immense sums expended by the devout, who seem mainly of the poorer classes. The scene at the grotto while services are going on is impressive and very pathetic. The contrast between the pilgrims and the mere tourists is very noticeable, and the numbers attracted by their aspirations or mere curiosity are enormous.

At Lourdes the tanks of the machine were replenished. Here, and indeed everywhere I went, air-cooled oil was unobtainable, so the tank was filled up with the water-cooled variety, an extra litre tin secured to the footrests, and a start made. The road towards Pierrefitte is nearly level, and, the engine humming away merrily, many miles soon separated me from the town. The valley is broad, but as one goes further the mountains close in, and the views in the evening light are very fine. The Hotel de la Poste at Pierrefitte, where I put up for two nights, is comfortable, clean, and inexpensive. The morning after my arrival the first real climb (to Arrens) was undertaken. The surface of the hill is good, but the road ascends in zigzags for some three miles, and, although the gradient is not excessive, I found it necessary to use the first speed most of the way up. A top speed of 3¾ to 1 is much too high for hilly country, and the low gear of about 8 to 1 was throughout the tour used much more than would be necessary with a more reasonable top speed.

A Two-speed Gear Most Useful.

However, there are in this compensating advantages, as it is very pleasant to ascend these long, winding hills at a slow but sure pace, and be able, without bothering about the engine, to fully enjoy the wonderful views which unfold themselves at every turn. On the level, open tracts one attains a speed which soon leaves uninteresting country behind. Moreover, in climbing long ascents in this country one is often tempted to dismount to admire the exquisite scenery, and frequently a dismount is made at places where with a single gear it would be impossible to restart. Being of a lazy disposition, I found it much less trouble to run the machine downhill for a few yards, declutch, turn it round, and after mounting in comfort glide off up the steepest slopes on the low gear, the alternative being a very hard push uphill until the engine gave its cheering cough.

(To be continued.)

A PASSENGER ATTACHMENT.

THE passenger attachment seen in the accompanying illustration is one made and used by Mr. William Milligan, Eglantine Villa, Stowmarket. The attachment is light and rigid, and the whole weight of the passenger is carried by the rear portion of the machine. To all intents and purposes it is a lady's bicycle minus the front wheel; consequently when a really severe hill is encountered, or even when starting, the passenger can assist with the pedals if necessary. One advantage of this form of attachment is that, owing to its light weight, it needs very little power to propel it, the motor bicycle in the illustration being a Clément of only 2 h.p. Mr. Milligan will be pleased to hear from anyone interested.

OCCASIONAL COMMENTS.

By "IXION."

The R.O.M. Contact Breaker.

From one or two letters I have received, it is clear some of my readers do not understand the principle of this device. It possesses two blades, A and B, of which B is a rocking blade, having a platinum stud at each end, making and breaking contact with a corresponding screw. This is nothing more nor less than a "switch blade." Blade A is an ordinary single make and break, with one stud, and one screw to match. These blades are worked by an eccentric and a double cam. The eccentric and the double switch blade shift the current from the real make and break to each cylinder in turn. Thus the firing in the cylinders is determined and actuated by one pair of platinum screws, and no matter how this pair of points are adjusted, worn, soiled, or pitted, the firing remains "synchronised." [See "Recent Patents," p. 286.—ED.]

Mr. Hooydonk and the Lightweights.

Mr. Hooydonk in his reply to me rather ignores my statements, and contents himself with pointing out that I have always turned the limelight on the heavyweight. To continue his metaphor, when the stage is crowded the man in the wings naturally turns his limelight on the stars. Now I am the man in the wings; it is not my business to show up the slovenly dancing, the tinsel jewels, and the fustian tights of the supers, but to project limelight on the star performers. I leave the poor supers alone as much as I honestly can; they may be stars when their stagecraft is a bit better. I have tested and ridden the low powered and lightweight machines as honestly as the heavy and high-powered, but I have always found the heavier weights were the real stars until the last eighteen months or so, when I began to see the supers were coming on a little, and since them I've turned a little more limelight on the supers. I daresay in the next act the star may be a bit *passée*, and a super may take the middle of the stage and sing a duet with her. If so, they shall equally share the limelight, and that is a promise, Mr. Hooydonk.

Handle-bar Mirrors.

Now that mirrors affording the driver a bird's-eye view of the road to his rear are becoming almost universal upon cars, perhaps motor cyclists will take to them a little more enthusiastically. It is my habit to take the pick of the road when I fancy I am alone, and once or twice I have been very nearly swept down by a car from behind when I have suddenly swerved to my wrong side in search of better going, my last escape being from an 80 h.p. Napier, handled by no less a person than S. F. Edge himself—though that fact would have been small consolation to Mrs. Ixion. Another emergency when these mirrors are very useful is when riding in company, and more especially reckless company. On a club run there is usually present at least one specimen of that breed of juggins who suddenly pops up level on your near side with about three inches to spare and enquires blandly if your throttle is fully open, because his isn't —"nowhere near it." Yet a third blessing the mirror may confer—and has actually conferred upon a fellow clubman of mine—is as follows: What time he was coaxing a level—well, one digit, with one cypher affixed —out of his new T.T. twin, the tell-tale disc revealed a burly constable emerging from the hedge to the rear and waving a handkerchief. Here the mirror proved literally worth its weight in silver, if not in gold.

Gudgeon Screws Adrift.

Another rider informs me he has experienced an accident similar to that I described, his set screw falling out of its place, and emerging into space through the cylinder walls at a point near the bottom of the piston's travel. He also is still using the same cylinder. He first clamped a band of plain brass to cover the orifice, but, finding his lubricant escaped he put a double band of asbestos cord covered with manganesite packing beneath the band of brass.

Belt v. Chain.

Mr. Vinsen tells us he intends riding a belt-driven J.A.P. with sidecar through the London to Edinburgh run. Consciously or unconsciously he has chosen the easiest 400 miles of road in the United Kingdom, and the relative superiority of belt and chain for sidecar work will remain to unconvinced riders as open a question as ever. If Mr. Vinsen would try to put the same outfit through the End-to-end, the anti-chain brigade would probably have something to chew the cud over. Mr. Vinsen should get to Edinburgh, with luck, on his top gear alone, as the big Napier did some years ago. But he will not get to John-o'-Groat's, with the same outfit, without using up a spare belt or two and most probably not without dropping his passenger.

Power for Sidecars.

The curious ideas of some riders upon the power for sidecar question are due to very limited riding experience. For instance, an owner recently described in our columns how 3½ h.p. would take his sidecar up Ridge Hill and Barnet Hill. These gentle slopes are flat compared to the gradients to be met with in many parts of England, and in any prolonged tour, and a machine which cannot take them with an enormous margin of spare power is practically useless for sidecar work. Riders often write to me on this question, and not seldom refuse to take my advice; if so, they invariably regret it. I had an almost tearful letter from the heart of Central Africa this week; the gentleman in question had a thoroughly good 6 h.p. twin, single geared, and was helpless with it. Nearer home, a man consulted me last year, and defying my counsel, fitted a sidecar to a 3 h.p. two-speeded chain driven. He lives in a northern county, and all the year he might be seen toiling on his low gear whenever the wind was blowing or the roads were heavy; often he failed to climb hills, even with the sidecar empty. This year he has substituted a 5 h.p. twin, also two-speeded and chain-driven; his low gear ratio is higher than I advised, and though a good driver and amateur mechanic he still knows what it is to fail on a hill with the chair empty. For a sidecar that is to be used for genuine touring work the following are essential requisites:

1. Minimum power, 5 h.p. 2. Chain transmission. 3. Two speeds. 4. A low second ratio (*e.g.*, 8½ to 1). I am well aware many riders will remain incredulous, but my words will be proved when the trade has had time to evolve an efficient motor bicycle specially designed for sidecar work.

OVERHEATING.

By R. W. AYTON.

OES an air-cooled engine overheat?

Considering the number of times during the past decade that this question has appeared in the automobile press, with the invariable result strong affirmative reply, it appears singular that ould yet again be propounded. Seeing that the omenon in question is painfully familiar to most s who can claim anything like an extended and d experience with air-cooled engines, the fact that xistence is seriously questioned borders on the ellous.

ut when we reflect that, from the technical point of , the peculiar effects experienced when "overheat- ' occurs are precisely what might be reasonably cted, and admit of a perfectly clear and reasonable anation by simple reference to well-known facts, it mes obvious that, in order to justify its recurrence, question should be prefixed by the short but ficant word that has been responsible for all true ress in thought and knowledge since man first n to think:

IY does an Air-cooled Engine Overheat?

rst of all let us determine by careful observation what happens when a motor cycle engine "over- ." In order to do this I invite the reader to npany me on an overheating expedition, say round .T. course, with a 1907 3½ h.p.

have done a couple of circuits at an average . only limited by due regard to fuel economy; quently things below deck have become pretty . A glance at the petrol gauge shows that we are within the consumption limit, so we resolve to give nachine its head and an opportunity to show it *can* do. Cautiously we adjust and readjust le, air, and spark until there is no longer any that we are getting maximum speed. Through r but twisty Glen Helen we tear at well over

All goes well until we reach the gradually asing gradient which forms the approach to ed Creg Willey's Hill. Here we notice that, ite of careful and systematic lubrication, the e slows down more than on previous trips. A turn to the left—the front wheel tips upwards— ve are really climbing. Horror! the engine is ually slowing down; the slight "knock" which d us to retard spark has increased to something en a "clank" and a "thump." Desperate, we to "L.P.A.," but in vain. The bark of the ist, which has been decreasing in sharpness, is nly dumb. A silent revolution or two, and the e pulls up dead with a jerk that almost saves us ouble of a hurried dismount. We are "stopped gh overheating."

An Interested Spectator.

a curious coincidence Mr. Nevill is on the hill. ving the occurrence, he approaches, condoles, explains:

"This is caused by a slight leakage past the ings. This leakage will have little effect at high peeds, but when the machine commences to ascend a hill the leak comes into action, the speed of the engine falls gradually yet surely, consequently the cooling effect gets less and less, and the machine finally stops with the engine *excessively* hot. Therefore the leak is responsible for the engine's overheated condition, and the cause of stoppage is a combination of loss through the leak, premature expansion of the incoming charge, and exhaust retention." (Page 177.)

More in sorrow than in anger we drop the stand, and, mindful of our newly fitted piston and polished rings, and of valves carefully ground in a few hours ago, invite him to try the compression. As we do not wish him any harm, we make sure that switch is off and air valve full open. He stands on the pedal; after a short interval admits that compression is unexpectedly good. He mounts and pedals vigorously, incautiously moving the air lever. Result as he drops exhaust valve is either a dead stop or a vicious back-fire, lifting him from the saddle and, *viâ* the pedal, providing his shin with a large and promising bruise. Undaunted, like a good sportsman, he offers to "give us a push-off." We gratefully accept, as we do not wish to return to the foot of the hill.

Now a strange thing happens. No matter whether the current is "on" or "off," regardless of any degree of belt-tightness, our combined efforts prove unequal to forcing the engine over compression! Whether we pedal whilst he pushes, or whether both run, the dropping of the exhaust valve is invariably the signal for either a dead stop or a fatiguing "drag" of belt over engine pulley. The engine, supposed to have been stopped through partial decompression, has suddenly developed a hyper-compression that defies our utmost efforts. By now we also are "excessively hot." We are reminded of the "arrmy mewel" of the Yankee humorists; also of Hooydonk's traffic experiences, and other things. As Mr. Nevill gamely assists us to push the machine to the top of the hill we call his attention to the fact that the exhaust valve is still in full working order, and invite him to explain how this fact fits in with his allegation of "exhaust retention." We are dimly conscious of a vague idea that loss of compression, whether past the piston or at any other point, would leave less exhaust to be disposed of, and that the slower the engine ran the longer would be the period during which the valve would be open for the escape of the burnt gases. He promises full particulars in a later edition. Warm and wondering, we resume our journey.

What it feels like to Ride in the T.T.

A smart switchback run until, just past St. John's Chapel, we find before us a glorious speed stretch—a broad straight road, gently falling for the greater part of a mile. Here is a chance to recover some of those lost minutes! Full advance, half throttle, full air; down we thunder at well over fifty miles an hour, the wind screaming past our ears as, crouching low, wrists taut, knees well in, and feet tight down, we strain our eyes to make sure that the sharp turn at the bottom is clear. Glorious! Life is worth living! A sharp, steady swing of leaping machine and tense rider—one living unit—and we are round, just clear of the child-crowned bank, and heading for Kirk Michael. Only a slight up-gradient, but the pace is perceptibly slower. A further opening of the throttle meets with an instant

Overheating.—

response; but the improvement is not maintained, the engine vibration becomes more irregular, and the sound of the exhaust seems to be losing its crisp sharpness. A tentative switch-off has the expected negative result —current quite superfluous. We nearly close the throttle, but, too late! it hardly delays the dreaded moment when the first backfire sends the belt squealing over the suddenly stationary engine pulley. Hastily we tweak open the exhaust valve, for in the lifter lies our only chance to keep going, even at a jog trot. Again are we obviously suffering, not from defective compression, but from a plentiful excess thereof.

Later on, after a smart run homewards, we switch off and lift exhaust valve before turning into, say, the gateway of the yard or garage. If now, at a materially reduced pace, we release the valve lifter, what happens? The engine at once starts firing, slowly, but regularly, although current is "off." Let the machine run round the yard and "have it out," regardless of the suffering belt fastener. We find that it slows down, and finally comes to a standstill with a violent backfire that throws us out of the saddle. But no sign of weak compression.

There is no need to further multiply instances. Clearly the empirical has again triumphed over the *a priori*.

Now incidents of the description above referred to have quite frequently occurred under my observation during the past eleven years. Varying only in intensity, their recurrence has presented substantially the same symptoms in quite a large number of engines of very varied types. On cars, a broken water joint (not an infrequent occurrence in the early days) has always heralded its unwelcome existence by the appearance of similar phenomena.

In the case of a small gas engine (4in. bore × 7in. stroke) which had an uncooled header, a slight overload tending to reduce its speed, invariably caused rapid slowing-down, muffling of exhaust noise, and final stoppage through backfire, with reversal of motion thereby. Whenever, within my knowledge, an air-cooled engine has been overdriven, whether in height of summer or in depth of winter, Nemesis has always assumed substantially the same forms; and that such retribution has been more tardy in some cases than others has always been traceable to one, or a combination of two, simple factors. These are:

(*a*.) Ratio of Compression Space to Cylinder Volume, and

(*b*.) Number of Revolutions per Minute.

The operation of factor (*a*) is well-known and widely recognised. It may be briefly stated as follows:

Given two similar engines working under equal conditions, but varying only as regards compression ratio, the engine with the higher compression will invariably be the first to exhibit the symptoms previously described should they occur.

It should be borne in mind that, in addition to its functions as a fuel economising device, the throttle exercises an effect equivalent to that of a variable compression space. This explains two facts that have probably been observed by most motor cyclists, viz.:

(1.) In order to use a high compression engine without overheating, it must be driven with the minimum throttle opening permissible under any given conditions.

(2.) Such an engine, so driven, will generally run satisfactorily under ordinary conditions, but w probably fail on the first long hill having a gradie necessitating serious increase in the gas supply.

This brings us to the even more important factor (i

The Critical Speed of an Engine.

Every engine has a critical speed for a given deg of compression, the determining factor being t efficiency of the cooling arrangements. Above t speed, the period during which the charge is bei forced into intimate contact with the heated walls (*e.*, duration of compression stroke) is insufficient for t absorption of sufficient heat therefrom, plus the h of compression, to render the charge self-igniti Consequently ignition is effected by, and depend upon, the passage of the spark. Under these conditi it is obvious that any reduction of engine speed will followed by automatic pre-ignition having a slight le upon (*i.e.*, occurring slightly in advance of) the pass of the spark. Switching off the current will at t stage produce practically no effect upon the firing the engine. The additional back pressure or negat work thus thrown upon the piston will tend to furt reduce engine speed, causing a reduction in the w drawing effect of the throttle. The results the become cumulative. The degree of compression a matically increases as the compression period lengthe consequently the moment of automatic pre-igni occurs earlier in each compression stroke. Ignition combustion are now complete before the exhaust v opens; hence the altered character of the exh noise. Meanwhile the cylinder walls are absorbing unduly large proportion of the heat evolved, owing the ignition taking place early in the compres stroke. Finally, the engine is brought to a stand by the excessive back pressure, sometimes so sudd that the pressure of the finally ignited charge has t released by lifting the exhaust valve before the en can be turned over. The cylinder walls are now so that restarting is impossible, the first charge firing e in compression stroke, and resisting the efforts of belt with a back pressure on the piston of anything to 300 lbs. per square inch. When the cyli temperature shall have fallen below the degree requ to produce pre-ignition—and not until then—shall be again in possession of a "prime mover."

Overheating and Pre-ignition one and the sa

It will thus be seen that leaky pistons, co-effici of expansion, and transformations of energy have re "nothing to do with the case." Overheating generally understood by the motor cyclist, is synonyn with pre-ignition. Remove the causes of the latter, the effects attributed to the former disappear.

The reason why this explanation has not accorded its proper value in previous discussions the subject is simply that the debaters have faile recognise the influence of the all-important time fa This is, to a large extent, also the reason for inadequacy of illustrations drawn from standard engine practice.

Let us now apply this time factor, as a sort of to stone, to what is probably the most ancient fallac all, yet once more revived by Mr. Nevill, and, even less excuse, by Mr. Burnand—the "abno expansion of the charge" due to "heating of the ch during admission."

We will first consider the conditions. A qua of gas is being drawn, at a high velocity, throu

verheating.—

ort which, in a well-designed modern engine, consists f a very short rectangular aperture of relatively large rea. The time occupied by the passage of the entire harge, *i.e.*, from opening to closing of induction valve, at ordinary speeds approximately 1-40s.; at racing peeds 1-80s., or even less! This gas consists mainly f atmospheric air charged with finely divided petrol n the act of undergoing evaporation (*e.g.*, heat absorption), and is also, as Mr. Burnand points out, "wire-rawn," or in a state of forcible attenuation. Its mperature at entry must, therefore, by the very law ferred to by Mr. Nevill, be considerably below that f the atmosphere.

Why the Carburetter is Heated.

Having regard to these conditions, I submit that it not reasonable to assume that a gas is capable of ceiving, in such a minute space of time, any serious crement of heat from the surrounding metal during s passage into the cylinder. The manograph indicator me years ago established the fact that, in motor cycle gines having valves of quite moderate dimensions, haust retention was practically non-existent even at e highest speeds. This leaves the rapidly cooling ntents of the clearance space, at about atmospheric ressure, the only credible source of gas heating prior commencement of compression. That the heat-sorption from this source is not undesirably excessive evinced by the well-known necessity of pre-heating e air supply to the carburetter under unfavourable mospheric conditions. Were the heat transfer in the linder at all considerable, this should be more than fficient to complete vaporisation of the fuel without y recourse to external aids. Many facts go to prove at, so far as motor cycle and automobile engines are ncerned, the amount of heat so transferred is barely fficient, even under the most favourable circumances, for the completion of fuel vaporisation. I ink, however, that sufficient has been said on this bject for the present.

But when I find it seriously suggested that a partial r throttled) charge of the composition and nature ferred to is capable of acting as an accessory to overeating by mere "transformation of its energy of velocity to heat," I can only hope that Mr. Dugald Clerk is isrepresented. Consider the nature of the alleged source f heat: a current of air, its original (atmospheric) mperature lowered by forcible expansion, and still rther reduced by abstraction of its heat in order to ffect the evaporation of a finely divided volatile hydrocarbon! What is its velocity? Merely that due to a ifference in pressure of quite a few pounds per square ch, 14 lbs. representing a theoretical maximum mpossible not only of attainment, but even of approach, n actual practice. Is its motion suddenly arrested, as uch a theory would require? No, it is impelled into chamber of comparatively large area, in which it is ree to distribute itself in all directions.

If there were any truth in this theory, it appears to e that the heating effect should be most strongly pparent at the throttle, where the reduction of velocity ctually takes place, where the area of the gas passage s considerably more restricted than at any other point, nd where, owing to the forms of construction usually dopted, the impact of gas upon metal is comparatively iolent. I may be a most unobservant individual, but the interests of truth compel me to acknowledge that, in eleven years' motoring experience, I have never met with a single instance of such an occurrence; still, I am open to correction from any reader who finds that his throttle "overheats." It may be some tardy consolation to the competitors who in a recent reliability trial were stopped by frozen carburetters to learn that, according to what I conceive to be a reasonable application of this "theory," their carburetters should have been too hot to touch.

The Effect of Gas Retention.

With regard to Mr. Nevill's remarks headed "The Effect of Gas Retention," and to his statements elsewhere on this subject, I refer him to the well-known work of Professor Callendar, M.A., F.R.S., which distinctly demonstrates the inapplicability of Mr. Nevill's theories to the cycle motor. In fact, so closely do the Professor's general conclusions, on this and several other points, agree with the conditions observable in practice, that we are entitled to conclude from Mr. Nevill's statements either that the modern gas engine is technically inferior in design to the present day cycle motor, or that Mr. Nevill's indicator (or his observations therewith) is quite unreliable. I trust that this gentleman will not consider me unduly personal when I say that, having regard to his quoted remarks, and to the numerous minor inaccuracies to which considerations of space permit of no more than this passing reference, I consider it to be reasonably doubtful whether he has ever had any serious experience with air-cooled motors at all.

Finally, I would point out that the conclusions to be drawn from the explanation now advanced are in perfect agreement with the best practice of to-day, which is entirely an empirical product, having been developed by trial and error during the past twelve years, owing practically nothing but its working cycle to previous knowledge, and almost entirely unindebted to pre-existent data.

How to Prevent Overheating.

In order to minimise "overheating" troubles, as generally understood, it is desirable that:

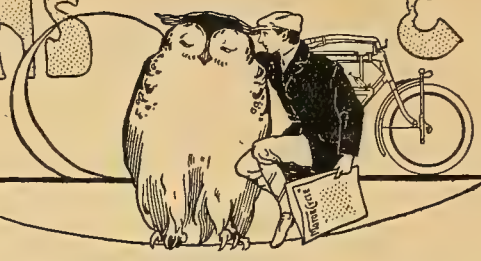
(*a.*) The ratio of gearing adopted under any given circumstances should be that, which does not impose any serious reduction of the engine speed from the normal. When, as on a hill, the speed of the machine (and consequently the cooling effect) is reduced by increase of gearing ratio, the latter must be such as to permit of maintenance of normal engine speed on a reduced (throttled) fuel charge.

(*b.*) The compression ratio should not exceed that degree which, at maximum throttle position, will produce a temperature of explosion the effects of which are capable of being efficiently (as below) dealt with by the cooling arrangements.

(*c.*) The minimum radiating surface allowable should be regarded as that which permits of the rate of radiation at normal working speeds equalling that of heat transmission through the walls at a temperature in the latter below that required to effect pre-ignition.

I have omitted all reference to data and formulæ, which are of no interest to the majority of motor cyclists. I may, however, mention that these strongly support the views herein set forth, notably that which I have advanced regarding the impossibility of the alleged "undue expansion of charge during admission."

QUESTIONS & REPLIES



A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Measuring the Engine and Gear.

I shall be obliged if you will inform me how to correctly measure the bore and stroke of an engine. Also how to find out the gear. I would also like to know what gear you consider best for a 2¾ h.p. engine, weight of machine 130 lbs., and rider 10½ stones.—H.O., Staffs.

You measure the bore of the engine with the aid of a pair of callipers and an engineer's rule. The stroke is found by measuring the length of the path through which the piston travels. Set the piston on the top of the stroke and pass a wire through compression tap, mark wire with a file, turn engine until piston is at bottom of stroke and again mark wire, the distance between the two marks is the stroke. To find the gear is a very simple matter. See that the belt is in position on the two pulleys, mark both of them, revolve the rear pulley once and count how many times the engine pulley revolves to one revolution of the former, which will give you the gear. A suitable gear for a 2¾ h.p. engine and 26in. wheels is 4¾ to 5¼ to 1, depending on the number of hills in your district.

Comfort of Lightweights.

I am thinking of purchasing a Motosacoche motor bicycle or a motor set from the makers of this machine. Can you please tell me if you think there would be any vibration in riding one of their machines, or if there would be any vibration in riding my own pedal cycle with a Motosacoche motor set attached? I notice there appears to be no sign of any springs, and I was wondering if they would be comfortable to ride. Do you consider them comfortable machines to ride, or would you advise me to have springs fitted to my bicycle or one of their machines if I adopted either? —C.P.

There is hardly any engine vibration at all from these machines. The usual amount of road vibration cannot be avoided, but this is practically negligible if spring front fork and large saddle are fitted. We should, however, strongly advise you not to fit the attachment to your pedal machine. The frames to which these attachments are fitted are specially strong, and, being designed for a particular purpose, an ordinary frame cannot possibly be as good.

Easy Starting with a Magneto.

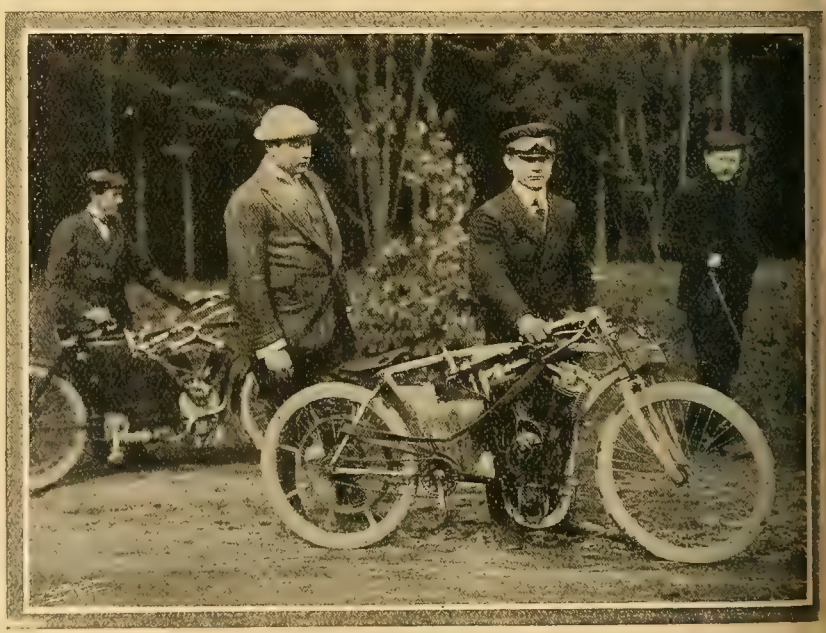
I possess a 3½ h.p. Triumph motor cycle with magneto ignition. Should it be possible for a nine stone rider of medium strength to start this machine on level ground by means of the pedals? I cannot do so at present. The method of running and then vaulting into the saddle appears too risky. If you can give me any suggestions whereby I could make the machine start easier, such as how to adjust magneto contacts, etc., I should be obliged.—E.A.B., Kettering.

Yes, the machine could be started by means of the pedals on level ground. The best way to make the machine start easily is to first of all inject paraffin into the cylinder to free the piston and rings, then flood the carburetter, open the throttle half-way, close the air and advance the spark lever almost fully, when the engine should start without any trouble. If you have interfered with the sparking plug gap you must adjust the points so that they are almost touching. Magneto contacts should be kept clean and flat. If fibre ring is worn obtain a new one.

Sidecars and Single Gears.

I am going to buy a sidecar attachment for my 3½ h.p. motor bicycle, and think of fitting a clutch to the bicycle. I am told that it will be impossible to start from a standstill without a two-speed gear. Is this so and is a change-speed gear absolutely indispensable for passenger work? I may mention I am not anxious to fit a gear if I can manage without one, owing to the increased complication.—A.J., Birmingham.

It should be possible to start from a standstill with a clutch and sidecar attachment if the machine is very low geared, and assisted by pedalling. Whether a two-speed gear is absolutely indispensable depends on the weight of yourself and passenger, the district in which you live, and whether you are averse to occasionally assisting the machine with the pedals on hills. If you are active, a great amount of fun can be obtained with a single-geared passenger machine in a level district, especially if the gear of the bicycle is suitably proportioned, but for serious touring a change gear is indispensable.



Ellischka, winner of the Prague Hill-climbing Competition, and his twin-cylinder Laurin and Klement racer. This machine has a low tension magneto, surface carburetter, and flat belt. The hill-climb is referred to in a paragraph on page 279.

Amount of Oil in Crankcase.

On draining the oil from the crankcase after a long ride should I give only one pumpful or two before running the bicycle again? The machine I ride is a 1908 Triumph.—N.H.W., Canterbury.

We should advise two to three pumpfuls of oil with this make of engine, after crankcase has been completely drained.

Picking up Speed after Changing Gear.

I have a 3½ h.p. Phœnix Cob, two speeds, magneto, which goes very well except for one thing. On coming to hills I have to get on to second speed very early, and on reaching the top I have difficulty in getting back to top speed unless the ground is level, or on a downward slope. Some time ago it picked up much quicker, and I cannot find out why it does not do so now. All the parts, valves, etc., seem in good condition.—M.D., Seaford.

Probably the carburetter is stopped up, or the compression of the engine is very weak. You had better overhaul the carburetter carefully and see that it is quite clear, also the feed pipe. If you close the air lever a notch or two after you have let in the high speed, it will assist the engine slightly in picking up.

Controlling the Engine Down Hills.

My 1¾ h.p. F.N. can be controlled in traffic nicely by two methods—(1) left handle control by switching the ignition off and on, or (2) right handle control by raising or dropping the exhaust valve lifter. The former is the easier, but does it harm the engine or belt? And which is the more effective way of cooling the engine on short dips in the road, turning off the ignition (handle control), or lifting the exhaust valve lifter?—J.B.M., N. Wales.

The more effective way of driving the engine is to control it by means of the exhaust valve lifter, which is kinder to the engine. When running down short hills raise the exhaust valve; when descending long hills the ignition may be switched off. Switching off cools engine quicker and better. Do not switch on unless machine is travelling fairly fast.

Non-sooting Plugs.

I have ridden for some time a Rex de Luxe motor cycle, with which I am very pleased. There is only one little fault which I should like to know how to remedy. I occasionally have trouble with the plug in the rear cylinder getting oiled up, but if I diminish the amount of lubricating oil the front cylinder runs short and is inclined to seize.—J.W., Stockport.

The only cure is to use a non-sooting plug, *i.e.*, a plug with protected points. The end of the plug is provided with a cap in which is a small orifice, the points are under the cap, and are thereby protected to a great extent from the oil. Smaller charges of oil injected at more frequent intervals are also advisable under the circumstances.

Magneto Points causing Difficult Starting.

I have a 3½ h.p. N.S.U. with magneto. The only fault I find is in starting when the engine has been going but has been stopped for a few minutes on the roadside. Several times after riding to a friend's house I have waited outside for him, and when I try to start it refuses to fire, and I have to put the bicycle on its stand and start the engine, which starts fairly easily on the stand. Even when the engine is hot the engine starts with slight difficulty. I think the mixture is all right, and I have the spark retarded. Could it possibly be the contact, because the points do not absolutely meet full, but one about half-way over the other?—L.B., Harrow.

The sluggish starting is almost certain to be due to the adjustment of the magneto points, which should meet full and square. Apparently, they have become worn, and need filing and adjusting closer together. For easy starting with N.S.U. machines the spark lever should be quite vertical. We would also suggest that the sparking plug points are not close enough together. They should be as close as possible without actually touching. Always inject paraffin into the cylinder after the machine has been standing for some time. This frees the rings and enables the machine to be started more easily, and to be pushed or pedalled faster, which is a most important fact when starting with any ignition. We have ridden some machines which require paraffin after remaining at rest only half an hour at this time of the year. The oil congeals very rapidly in cool weather; try a thinner oil except in summer.

The Noise of Motor Cycles.

While proceeding slowly down a lane the other day with exhaust valve lifted, the ordinary sound of the engine on dropping the lifter for a moment caused an unattended tradesman's horse to run away and damage another vehicle. I am sure this shying of horses must be an everyday experience with motor cyclists. Your valued opinion, therefore, as to whether I am liable for the damage would interest all, and be much appreciated by your readers.—COLLIS.

We have obtained a legal opinion with regard to this query, which is as follows: "The query of 'Collis' is one difficult to answer, as so much depends upon the exact facts of the case, and, moreover, the decisions of the Courts are rather contradictory. The general principle seems to be that if something is done negligently, which would be likely to make a horse shy, an action will lie. Your correspondent states in his letter that the shying of horses must be an everyday experience with motor cyclists, and therefore it is reasonable to suppose that he was aware that the dropping of the lifter might cause a horse to shy. If he had been on the lookout he would have seen that this horse was unattended, and under those circumstances I consider that there was negligence on his part. While the owner of the horse would probably be unable to sustain an action against the motor cyclist, yet the owner of the third vehicle might. It would be for a jury to decide whether the motor cyclist was guilty of negligence, and if so whether what happened was the natural consequence of such negligence. If your correspondent can settle the matter for a small sum he should do so, but in any event it would be best for him to consult a solicitor and explain the full facts to him."

On March 26th a reply to a query was sent to Mr. A. Cooke, 24, King Street, Liverpool. On March 28th the letter was returned marked "insufficient address." Will Mr. Cooke please send his proper address?

READERS' REPLIES.

I have precisely the same trouble with my Quadrant tricar as A. H. (Hanley). My experience of the popping sound in exhaust has been a great trouble. I had my machine thoroughly overhauled by a good firm, and drove about 100 miles all right. After that time (in cold weather) I went a short spin and the popping commenced again, but only when using the high speed gear; it would go all right on low speed. Could the trouble possibly be due to inlet valves not opening and closing properly? as I fancy the springs are not tempered perfectly. My coil is a plain one. I shall be glad if A. H. (Hanley) will communicate with me, c/o the Editor—I shall then know if either of us has got rid of the trouble, and how. I may say the answers to questions which I habitually read in *The Motor Cycle* are most valuable and instructive.—A. D. WALKER.

I notice a letter from a correspondent who has had trouble with a 3½ h.p. Minerva. He states that the engine comes to a sudden stop as if all brakes were on. I have had nearly 15,000 miles experience with Minervas, and I may say I had an exactly similar experience. I tried for some time to find out the cause, but could not, until one day I took the contact breaker completely to pieces. I then discovered that the platinum tip on the screw was loose and sliding up and down inside the end of the screw. Of course, it made and broke contact anywhere but at the correct point, and thus the sudden stoppages were merely bad backfires, which with a chain drive would have pitched one over the handle-bar or broken the chain. On fitting a new screw the trouble disappeared.—G.H.A.

¶ *"THE AUTOCAR," which is published under the same proprietorship as "The Motor Cycle," is to the automobilist what this journal is to the motor cyclist. Any reader of "The Motor Cycle" who is also considering the purchase of a car should make a point of obtaining "The Autocar"—the leading motor journal. Price 3d. Issued weekly.*

Brooklands Automobile Racing Club.

MOTOR CYCLE REGULATIONS approved by the A.C.U., in accordance with Rule 3 of the Racing Rules of the B.A.R.C. The indented rules are those adopted by the Royal Automobile Club for cars.

1. DEFINITION: In these regulations the word "rule" shall mean one of the racing rules of the Brooklands Automobile Racing Club, as adopted by the Royal Automobile Club.

2. Rule 9 shall not apply, but the distance of the track shall be measured 10ft. from the inner edge.

9.—The length of the track shall be the distance to be traversed, measured 50ft. from the inner edge.

3. Rule 11 shall not apply. All classification of vehicles, and all regulations in respect thereof, shall be framed by the Brooklands Automobile Racing Club, but require the approval of the Auto Cycle Union.

11.—Classification of vehicles, and all regulations in respect thereof, shall be framed by the Club.

4. An official programme, as provided by Rule 13, shall be sent to the Auto Cycle Union.

13.—At least twenty-four hours before the time announced for the commencement of the meeting, the Club shall furnish to the Automobile Club and to each entrant an official programme, clearly marked "Official Programme" on the face thereof, which programme shall contain in its final form the information required to be given in the announcement of the meeting, together with particulars of the entries accepted for each competition, the arrangement and times of the various competitions, the names of the entrant and driver of each vehicle, the identification number or mark which each vehicle will carry in the meeting, and the handicap, if any, and if not sealed. Any assumed name shall be indicated on the official programme by inverted commas.

5. Rule 22 shall not apply.

22.—No vehicle, while competing, shall be pushed, aided, or set in motion by any persons other than the driver and his assistant, if an assistant be carried.

6. In Rule 25 the words "Auto Cycle Union" shall be substituted for the words "Automobile Club."

25.—No competitor shall be eligible to enter a vehicle for or drive a vehicle in any competition unless the name of such competitor is duly entered upon the Competitors' Register of the Automobile Club. The competitor shall produce the certificate of registration of the Automobile Club on the demand of an official of the Club at any meeting.

7. In Rule 26 the words "five shillings" shall be substituted for the words "half a guinea"; and the words "half a crown" shall be substituted for the words "five shillings."

26.—The fee for such registration of a competitor is half a guinea, except in the case of a member of the Automobile Club or of a club affiliated to the Automobile Club, in which case the fee is five shillings.

8. In Rule 28 the words "ten shillings" shall be substituted for the words "two guineas."

28.—On payment of an additional annual fee of two guineas a competitor may be registered under an assumed name approved by the Automobile Club; provided that the competitor while registered under such assumed name shall not compete under any other name.

9. After the word "Handicappers" in the eighth line of Rule 36 the following words shall be inserted: "But these shall be officials of the Auto Cycle Union." The remainder of Rule 36 shall stand.

36.—The following are the recognised officials of a meeting, and their appointment shall be subject to the approval of the Club, viz., three stewards, a judge, a starter, a clerk of the scales, and a clerk of the course. In case of emergency the stewards present may appoint unauthorised substitutes or assistants to fill or assist in any of the above-mentioned offices. There may also be appointed timekeepers and handicappers. No official of the club, whether temporary or permanent, shall be eligible to compete in any competition at a meeting at which he is officiating.

10. No rider shall use more than one machine in a contest; he shall only be allowed one starter, and this only where the race proposition does not prohibit starters.

11. Hand-timing shall be permissible for Auto Cycle events, provided all timing certificates state the fact that hand-timing was used, and provided arrangements have been made with the Brooklands Automobile Racing Club.

12. Rule 56 shall not apply, the following rule being substituted: "All handicaps shall be framed by an official handicapper of the Auto Cycle Union."

56.—All handicaps shall be framed by an official handicapper appointed by the Club.

13. PROTESTS: In Rules 71, 72, and 75, the words "Auto Cycle Union" shall be substituted for the words "Automobile Club," and, in Rule 71, the words "two pounds" shall be substituted for the words "five pounds."

71.—Every protest shall be in writing, and must be signed by a competitor engaged in the competition, or by his authorised agent, and must be lodged with the clerk of the course within the time prescribed by these rules; the person protesting shall, at the time he makes the protest, deposit in the hands of the person to whom the protest is made the sum of £5. If the protest be decided against the depositor, his deposit shall be forfeited to the Club unless the stewards who heard the case, or the stewards of the Automobile Club, on appeal, shall certify that there was good and reasonable ground for the protest or the appeal.

72.—All protests shall be adjudicated upon by the stewards. All parties concerned shall be given an opportunity of being heard, and shall be bound by the decision given, subject only to appeal to the stewards of the Automobile Club as herein provided.

75.—(i.) A protest against a vehicle as to classification and validity of entry (otherwise than as provided by Rule 31) must be made before the start of the competition.

14. CORRUPT PRACTICES: In Rule 79 the words "Auto Cycle Union" shall be substituted for the words "Automobile Club."

79.—Any person who shall knowingly enter for or take part in a competition not being held under the Competition Rules of the Automobile Club of Great Britain and Ireland, or under these rules, or who shall be guilty of any misbehaviour or unfair practice in connection with automobilism, whether relating to competitions or not, shall be deemed to be guilty of a breach of these rules.

15. DISQUALIFICATION AND SUSPENSION: In Rules 81, 87, and 89, the words "Auto Cycle Union" shall be substituted for the words "Automobile Club."

81.—The stewards may, on any complaint being made to them or on their own initiative, take cognisance of and deal with any breach of or offence against these rules by the suspension of any person or in such other manner as they may think fit, subject only to an appeal to the Automobile Club as provided by these rules, and such suspension shall be reported to the Automobile Club.

86.—Any person who shall have been suspended in accordance with these rules may be suspended by the Automobile Club from taking part in any competition and may be struck off the Competitors' Register.

87.—Suspension may be either temporary or permanent; if temporary, it shall be recorded in the Competitors' Register, if made permanent by the Automobile Club the competitor's name shall be struck off the Competitors' Register; and no person shall be allowed to enter or take part in any competition under these rules while under sentence of suspension.

89.—The Club or the Automobile Club may, in their absolute discretion, and in such manner as they may think fit, notify or cause to be notified to the public that any person has been disqualified or suspended, and the name of such person. No action or any proceeding shall under any circumstances be maintainable by the person referred to in such notification against the Club or the Automobile Club, or against any person publishing or circulating the same, and this rule shall operate as leave to the Club and the Automobile Club and to any such person to publish and circulate such notification and be pleadable accordingly.

16. APPEALS: In Rules 91, 92, 93, 94, 95, and 96, the words "Auto Cycle Union" shall be substituted for the words

Brooklands Automobile Racing Club.—

"Automobile Club," and, in Rule 90, the words "ten shillings" shall be substituted for the words "twenty-five pounds."

90.—If any person is aggrieved by a sentence of disqualification or suspension under these rules, he shall, upon giving written notice to the secretary of the Automobile Club, within forty-eight hours of the decision against which he appeals being made known, accompanied by a deposit of £25, have the right of appeal to the stewards of the Automobile Club, appointed as provided by the rules of the Automobile Club for the time being.

91.—A sentence pronounced by the stewards of the Automobile Club shall be final and without appeal, and shall be binding on the Club and all other persons for all purposes. The stewards of the Automobile Club may authorise a statement to be inserted in the *Automobile Club Journal and Motor Union Gazette* of any decisions under this rule.

92.—The deposit shall be forfeited to the Automobile Club or shall be returned to the appellant, as the stewards of the Automobile Club may determine.

93.—If the stewards of the Automobile Club shall be of opinion that the fault committed demands a penalty greater than that which has been imposed, they shall have power to increase such penalty.

94.—The stewards of the Automobile Club shall have power to inflict fines and order payment of costs at their discretion.

95.—In no case shall the stewards of the Automobile Club have the power to order a competition to be run again.

96.—All appeals referred to or brought before the stewards of the Automobile Club for their decision shall be decided by a quorum of not less than three stewards of the Automobile Club. The stewards of the Automobile Club may call to their aid any stewards or other officials or members of the Club, and may procure such professional and other expert assistance as they may deem desirable.

17. The supplementary regulations of the Brooklands Automobile Racing Club shall apply with the following alterations:

In Regulation 5 the amount "10s." shall be substituted for the amount "£5."

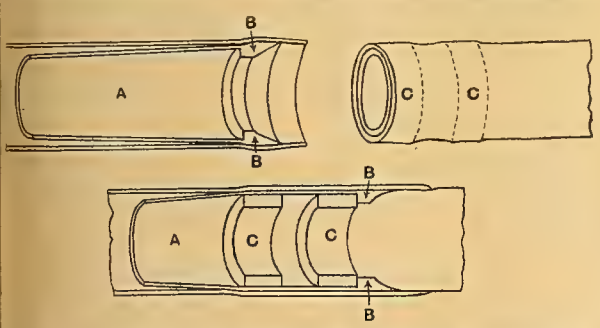
5. FINE FOR NON-STARTING: Every entrant whose vehicle fails to take part in the race for which it is entered shall be fined £5, unless he shall have notified the clerk of the course, in writing, prior to the publication of the official programme of his intention not to start. This fine shall be paid to the clerk of the course within seven days of the time appointed for the race; non-payment of the fine shall debar an entrant from entering for any races, and may entail further steps being taken against him by the Club.

18. NUMBERING OF VEHICLES: Every entrant shall provide and fix at his own expense such number or numbers as may be prescribed by the Brooklands Automobile Racing Club.

A DETACHABLE JOINTED TUBE.

THE illustration herewith is that of the Hermetic detachable jointed air tube made by the Self-sealing Rubber Co., Ltd., Birmingham; the joints can also be fitted to any ordinary air tubes mentioned in their list.

To make the joint, the end of the air tube containing the rubber rings C C is flattened and folded, when it can be readily passed through beyond the flange B on the other end of the air tube. The application of a little soft soap or French chalk renders the operation



a very easy one. It is important to note that both of the rings C must be pushed beyond the flange B. Care must also be taken that the air tube is not twisted.

To separate the joint it should be flattened and folded slightly, when the two ends of the air tube can be readily separated.

When fitting these air tubes into covers care should be taken that the tube is so fitted that the mouth of the detachable joint faces the running direction of the tyre.

Zenith Motors, Ltd., ask us to point out that the Gradua gear is not suitable for fitting to existing motor cycles on account of the cost of the necessary alterations, but the gear can be incorporated with any machine when it is being built up.

A NEW SPARKING PLUG.

THE sparking plug which we illustrate on this page is a specially made plug called the Reliance, sold by Messrs. S. and F. Stephenson, 19, Canning Place, Liverpool. It differs from ordinary sparking plugs in the matter of the insulated central wire. This is a hair-like platinum wire protected from corrosive action by being baked in, and being brought flush with the surface of the porcelain insulator. It is claimed that the spark in leaving this minute point is concentrated and intensified to such a degree that the heat and scouring action of the spark, being directed against the surface of the insulator, instantly destroys any short circuiting matter surrounding the point. The Reliance plug is manufactured by the Jeffery-Dewitt Co., New Jersey, U.S.A., and it is said that it will spark under water, and therefore under any conditions obtaining in a petrol engine cylinder, as combinations of oil and carbon cannot be compared with water as a short circuiting matter. The English agents have kindly sent us a sample sparking plug, and we shall hope to say what we think of it after trial.

If the variable speed pulley, adjustable from the saddle, is to be a real success, the firm of Osborne Bros., Princess Works, Lincoln, should reap the benefit of their pioneer work. They were the original inventors of the variable speed pulley obtained by sliding a loose flange in or out, so raising or lowering the belt in the groove of the pulley to suit the prevailing road conditions. The makers have just issued a new catalogue showing the mechanism in detail, and describing how the pulley and change speed lever are fitted to any machine.

CURRENT CHAT.

Special Features.

BROOKLANDS RACING RULES.

A FEW DAYS IN THE PYRENEES. (Illustrated.)

The End-to-end Run, July 13th to 18th.

Special hotel arrangements are being made at the various stopping places for the competitors in the End-to-end trial, very much on the same lines as on the previous trial.

A Club for Stockport.

Stockport has followed the lead of most other large towns and formed a motor cycle club. There are over 100 motor cyclists in the town.

A Hint.

Nottingham is one of the few large towns in the British Isles with no motor cycle club. It is not, however, owing to any dearth in the number of devotees of the pastime of motor cycling in this district, but to a want of unity. Probably when a few influential motor cyclists get together a determined effort will be made to form a club.

How to Win Hill-climbs.

A correspondent writes this week with reference to the article "How to Win Hill-climbs," published on March 25th, and points out that the sentence "Power absorbed by wind resistance varies inversely as the speed," should read "Varies directly as the square of the speed." We make the necessary correction with pleasure. The paragraph is fully explained on page 231 in the article "Selection of Gear Ratio."

The Motor Cycle Race at Brooklands.

Intending competitors in the first motor cycle race at Brooklands at Easter are reminded that entries close to-morrow (Thursday) to the Brooklands Automobile Racing Club, Carlton House, Regent Street, S.W. The regulations being so simple, and the entry fee so low (10s.), considering the value of the first and second prizes, we expect to see a good turn-out. The rules affecting motor cycle racing on the Brooklands Track are published on page 276-7 this week.

Damage to Roads by Motor Vehicles.

"Taxpayer," Coventry, writes to *The Daily Chronicle* pointing out "the enormous damage done to the roads by cars and motor cycles being tested by the various makers." It is obviously absurd to put the harmless motor bicycle on the same level with heavy motor cars as road damaging machines, and we have yet to have proved to us that motor bicycles damage the roads in any way. It is rather strange that this complaint comes from Coventry, a city dependent almost entirely for its existence on the motor and cycle trades.

"The Motor Cycle" Spring Number.

Among the more important features of the special spring number of *The Motor Cycle* to be published on May 6th will be a special illustrated supplement by E. H. Thomas, the well-known motor cycle artist, entitled "Brooklands, an Impression of Speed." "Our Historic Highways," by R. Wellbye, with illustrations. "The Motor Cycle for Business Purposes," by Bagman. "Motor Cycling for Health," being the experiences of medical men who are also motor cyclists, etc., etc. Additional features will be announced in a subsequent issue.

A Reprehensible Trick.

On page 45 of the advertisements last week, the first advertisement under the heading "Too late for classification" seems to be an attempt by some individual at an exceedingly poor form of joke, since the whole affair appears to be a hoax. The unfortunate reader who has been victimised, Mr. Davison, has had thirteen telegrams, a large number of letters, and about thirty people applying at his house, among whom was a gentleman who came all the way from Wellingborough. Needless to say, we think behaviour of this kind is most reprehensible, and we take this opportunity of expressing our sympathy with Mr. Davison.

Motor Cycle Touring.

The next of the very interesting series of papers to be read before the members of the Auto Cycle Union is in the hands of that very good authority on "Motor Cycle Touring," Mr. A. Candler, the hon. sec. of the M.C.C. In view of Mr. Candler's wide and varied experience, he having undertaken several tours on the Continent on motor cycles, the paper should be of unusual interest, and some useful "hints and tips" should be gleaned. Any interested reader of *The Motor Cycle* may obtain a ticket of admission to the reading of the paper, at 119, Piccadilly, W., on Friday next, 10th April, at 8 p.m., on application to the secretary Auto Cycle Union, 18, Down Street, Piccadilly, W.

The Spelling of "Auto-Cycle Club."

In *The Bicycling World and Motorcycle Review*, issue March 21st, a reference is made to the spelling of the title of our governing body, namely, "Auto-Cycle" Club. This New York journal, which is apparently rather badly upset that the English press and principal British motor cycling bodies will not accept any promiscuous record that is sent over from the U.S.A., finds great fault with the manner in which the name of the club is written, namely, in three separate words. Surely this is a case of the pot calling the kettle black. Had we been asked our opinion as to how the American Club would have spelt it, we should imagine it would have been printed "Ortosycle-klub." As a matter of fact, the names as spelt "Auto-Cycle" Club and "Automobile" Club call for criticism from the etymological expert, but an American editor can hardly be expected to be a sufficiently good authority on either grammar or etymology to detect exactly where the fault would lie in this direction.

Appropriate.

Situated at the crux of the steep Chislehurst Hill, a bit of 1 in 7 where many single-geared machines fail, is an inn rejoicing in the name of the Ramblers' Rest. We suggest that a motor cycle rest or two for overheated engines should be provided.

Excessive Speed Victim.

The first victim of the new police ruling at Bromley is a Beckenham motor cyclist who last week was relieved of £1 and 8s. costs for travelling at "excessive speed" on a new and untried 2½ h.p. machine. At the same court the driver of a two-seated car, alleged to have done 38 m.p.h., and who admitted that it was a high speed car which could not be driven very slowly, was summoned for merely exceeding the legal limit.

A Fine Tricar Spill.

It is very pleasing to see the *Mirror's* adjudged to be "most beautiful girl in England" is the sister of a Southern motor cyclist, and shares his enthusiasm for our splendid pastime. From the published photograph of the lady in the *Mirror* she is quite the motor cyclist's ideal lady passenger. She informs the *D.M.*, "I like walking, climbing hills, and riding in a trailer. Not long ago I had a fine spill off a tricar, but wasn't a bit the worse." Of the interesting young lady it is further said, "Besides many spills from her cycle and the family tricar, she has had one perilous adventure—she was nearly drowned in the Thames." There is evidently something seriously amiss with the "family tricar." Still with such a charming passenger one could naturally overlook the driving a bit. We trust her next charioteer will be more expert.

FOR TOURING FOR TWO

A RILEY TRICAR

IS IDEAL

POWERFUL & RELIABLE
FAST & SILENT

Should it be your intention to tour, then you require a stable 2-seater—such as the Riley tricar. Remember, tinkering and touring do not go well together, while the Riley tricar has a well-earned reputation for reliability under all kinds of weather and road conditions.

Don't delay your decision—there is usually a big demand for a good article.

5 h.p. Riley Tricar - 85 guineas.

THE RILEY CYCLE CO., LTD. (Motor Dept.), COVENTRY.
London Agents: THE SERVICE CO., LTD., 292, High Holborn, London.

PHANOMEN

MOTOR CYCLES.

THE HALL MARK OF MECHANICAL EFFICIENCY.

With Two-Speed Gear NALA.

„ ROVIDE
„ ERFECT
„ LEASURE.
„ URCHASERS
„ LEASE
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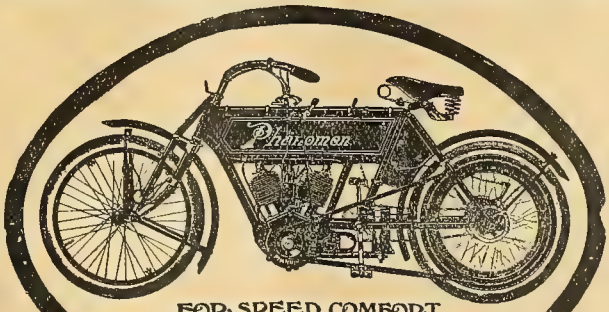


FOR SPEED, COMFORT, DURABILITY, SILENCE AND ABSOLUTE CONTROL IN TRAFFIC.

Prices.

S.B.H.T. Magneto.

3 h.p. 82/84 S'gle £37
3½ h.p. 86/84 „ £39
4 h.p. 67/72 Twin £46
6 h.p. 74/84 „ £50

Nala £12 extra.

card to us for our latest circular which cannot fail to interest you.

Showroom: 49, King Square, President Street, Goswell Road, E.C.; also at the Service Co., Ltd., 292, High Holborn.
Agent for Cardiff and District—ROBERT BEVAN, 31, Castle Street, Cardiff.

PHANOMEN MOTORS.

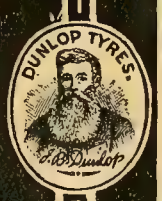
In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

TO ENSURE A THOROUGHLY SUCCESSFUL SEASON

and the maximum of enjoyment your tyres must be all right; in fact,

YOUR TYRES MUST BE

DUNLOPS



because

IT IS IMPOSSIBLE TO PROCURE A MORE RELIABLE AND DURABLE MOTOR CYCLE TYRE.

DUNLOP TYRE Co., Ltd., ASTON, BIRMINGHAM; Alma Street, Coventry.
Branches—London, Nott'gham, Manchester, Newcastle, Norwich, Bristol, Leeds, Glasgow, Dublin, Belfast.

Loss of Life through a Broken Spindle.

We regret to record a sad accident at Clifton on Tuesday evening of last week by which Harry Lawson Pendlebury, a member of the Bolton Motor Cycle Club, lost his life. Mr. Lawson was riding home from Manchester through Clifton when he was thrown over the handle-bars of his machine owing to the front spindle breaking. Mr. Jos. Pendlebury, deceased's father, said his son was in business in Manchester as an analytical chemist, and had ridden a motor bicycle regularly to business for about two years. The Coroner considered the front spindle was not sufficiently strong for a motor cycle, a view with which the jury agreed. It should be added that no spring forks were fitted.

Motor Cycling for Health.

One of the special features to be included in our spring number will be an article "Motor Cycling for Health," being the opinions of medical men who are actual users of motor cycles. We ask the hundreds of doctors who are readers of *The Motor Cycle* to be good enough to co-operate with us in this article, and the Editor will be pleased to send on a form with four questions to be answered (limit 100 words) to those who apply for one.

Brooklands Track Re-opened.

The Brooklands motor course was re-opened after repairs on Saturday last at 10 a.m. It is, as a rule, open on week days during the hours from 10 to 5 in the winter months, and from 10 to 7 in the summer months, on days when no race meetings or other trials are taking place. Private matches can be arranged by applying to the Clerk of the Course at Carlton House, Regent Street, S.W.

The Inter-club Meet at Richmond.

The Hull A.C.C. and Hartlepools M.C.C. will join in the inter-club meet of Northern motor cyclists at Richmond, North Yorkshire, on Good Friday. This makes seven clubs attending the meet, viz., Middlesbrough, Leeds, Bradford, Newcastle, Sheffield, Hartlepools, and Hull. Last Easter six clubs took part, including the Sunderland Motor Cycle Club, and there were upwards of 200 motor cyclists present.

The Hill-climb near Koenigssaal, Prague.

Fine weather and a representative list of entries co-operated in drawing a big crowd to the gradient between Königssaal and Jilowischt, some eight miles from Prague. Amongst the spectators figured the Archduke Karl Franz Josef, who drove up in a six-cylinder Minerva. Major Wolf, one of the keenest motorists in Austria, was also there. The results of the motor cycle contests were as follows: Cycles up to 65 kilos.—1, Ellischka (Laurin and Klement), 4m. 24⅘s.; 2, Swoboda (Laurin and Klement), 4m. 41⅘s. Cycles up to 0.6 litre.—1, Lad (Walter), 5m. 31⅘s.; 2, Rada (Walter), 7m. 7s.; 3, Belsky (Peugeot), 8m. 49s. Cycles over 0.6 litre.—1, Houtzvicka (Laurin and Klement), 5m. 33⅘s.; 2, Slavik (Laurin and Klement), 5m. 47s.; 3, Dietrich (S. Walter), 6m. 3⅘s. Motor bicycles with sidecars.—1, Pitschek (Laurin and Klement), 7m. 11⅘s.; 2, Storch (Walter), 7m. 42⅘s.; 3, Kral (Laurin and Klement), 7m. 57⅘s. The course was about 5.5 kilometres in length. Arrangements were in the hands of the Cesky Club Automobilistu and the Cesky Club Motorcyclistu.

The Auto Cycle Club of France Reliability Trial.

The date of the Tour de France trial for motor cycles and voiturettes has again been changed, this time to May 12-18th. The reason for the change of date given by the organisers is that the weather is more settled in May than April. The following entries in the motor cycle classes have been received up-to-date: Class 1, Motor Bicycles.—Quentin 2, Alcyon 2, Werner 1, Lurquin-Coudert 2, Peugeot 2. Class 2, Motor Bicycles.—Alcyon 2. Class 3, Tricars.—Mototri-Contal 2, Ronteix 1, Quentin 1, Ateliers du Turan 3, Sourian and Co. 1, Berujeau 1.

FUTURE EVENTS.

April 16-20—M.C.C. Easter Tour.
" 18 and 20—Brooklands Car and Motor Cycle Races.
" 19 (Easter Monday)—Lincolnshire M.C.C. Hill Climb.
" 22-28—Auto Cycle Club of France Reliability Trials.
" 25—A.C.U. Quarterly Trial.
" 25—Hertfordshire County A.C. Open Hill-climb for Motor Cycles.
May 2—M.C.C. Members' Hill-climb.
" 6—"The Motor Cycle" Special Spring Number.
" 9—Brooklands Motor Races.
" 9—Essex M.C. Open Hill Climb.
" ——A.C.U. Annual Hill Climb.
June 5-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 13-18—A.C.U. Land's End to John-o'-Groat's Six Days' Reliability Trial.
" 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.
" 8—Essex M.C. Open Race Meeting at the Stadium, Shepherd's Bush, W.

Notes on the Cudham Climb.

The police veto at Carter's Hill seems to indicate that open hill-climb competitions will only be possible on practically disused roads this year.

Two Cudham records were established. The Lagonda and Daneville were the first passenger machines to climb the hill, whilst a twin Rex carried a passenger up—another record.

A well-known motor cycling tourist present said, "It beats any Devonshire hill I know for trickiness."

It was a "surprise" climb in every way. Two-thirds of the competitors were acquainted with the hill by reputation only, and there was no time for trials, but in many cases lower gears were fitted.

It is essentially a "two-speed" hill. Had Cudham been decided upon at the outset a two-speed class would probably have filled well.

Humber, Ltd., will make Motor Cycles.

It is stated that Humber, Ltd., is about to re-commence the manufacture of motor cycles, and will shortly place a new pattern motor bicycle on the market. We are particularly pleased to hear of such an important firm re entering the industry. Humber motor cycles had a considerable run a few years ago, and practically every motor cyclist recognises a Humber car when he meets one on the road. We hope shortly to see as many new pattern Humber motor cycles on the road as there are Humber cars.

A New Official for Brooklands.

The Brooklands Automobile Racing Club has decided to appoint an official measurer and inspecting engineer, and has retained the services of R. H. Waymouth Prance.

Affiliated Clubs.

The following ten clubs have signed the new agreement for affiliation to the Auto Cycle Union and association with the Royal Automobile Club: Cambridge University M.C.C., Scarborough and District M.C.C., Sheffield and Hallamshire M.C.C., Bradford M.C.C., Worcester M.C.C., Birmingham M.C.C., Lancashire M.C.C., Lincolnshire M.C.C., Newcastle and District M.C.C., and North-west London M.C.C.

Lights on Vehicles Act, 1907.

The Highways Protection Committee of the Motor Union are desirous of ascertaining whether the Universal Lights on Vehicles Act is being observed, and if not, whether the police are taking proceedings against offenders. If the Act is not being properly enforced, the M.U. would be glad to receive suggestions as to the action it may usefully take in the matter.

Motor Mania Catching.

A Sheffield correspondent asks, "Don't you think the motor mania is catching? I have only had my motor cycle two months and three of my friends have bought similar machines."

Permits for Open Events.

The Auto Cycle Union has granted permits to the Essex M.C. for three open events this year, viz., hill-climb on May 9th, 200 miles reliability trial on July 4th, and third annual race meeting at the Stadium on August 8th.

An Amateur's Chances in the Brooklands Race.

Every private owner of a fast motor bicycle stands an equal chance in the first Brooklands Motor Cycle Race, and we should not be surprised to see more amateurs in the race than trade riders. We have heard of a Coventry rider who is busily tuning up a 3½ h.p. single-cylinder machine, and with a 3¼ to 1 gear expects to be among the first home. A high-powered engine does not necessarily win in a flat race, it is the engine that can get round the fastest with the highest gear that is successful in a race of this kind. The B.A.R.C. tells us that a large number of entry forms have been applied for.

The Lewisham A.C. Open Hill-climb.

ON arriving at Sevenoaks, after a swift and pleasant run on one of Mr. S. F. Edge's gliding 30 h.p. Napiers, we were informed that the police were unfavourably disposed towards the holding of the above competition on Carter's Hill. When about half an hour had elapsed, and the hungry competitors, officials, and spectators had satiated their appetites, instructions were given to proceed to the Rose and Crown Inn, Green Street Green, and there await orders. All that Saturday morning motor cyclists came streaming down the main road, far outnumbering all other self-propelled vehicles, and even while the goodly company was waiting for the arrival of the secretary, Mr. H. B. Renner, numerous spectators, all mounted on motor bicycles, sidecars, and tricars, came hurrying by on their way to Carter's Hill. Fortunately a number of these saw the crowd, halted, received the news, and joined the rapidly swelling throng. The move was well carried out, and, after a wait of not very long duration, the official cars, and a few motor cyclists, proceeded to the Church Hill, Cudham, not, however, before Mr. Edge himself (one of the judges), who was among the first to arrive to inspect this steepest of hills. Prettily situated in the wooded country for which the county of Kent is so famous, Cudham Hill lies about a third of the way between Green Street Green and Westerham, and is approached by a well kept by-road, which leads to the top of the hill. In a few minutes the course was chosen, and a few words describing it may not be out of place.

Cudham Hill.

For about two-thirds of the way up the road is practically straight, the gradient rapidly attaining great severity; then come two rather sharp bends, which are difficult to negotiate at speed, and then the finish on an almost precipitous section of one in four point three. At first it was thought that comparatively few of the competitors would get up, but when Reynolds made a successful attempt on his twin-cylinder Vindec, the hill did not seem quite so impossible; but never for a minute was its severity doubted, since every well negotiated climb was greeted with enthusiastic applause. In a short space of time all was ready. J. H. Burley, the timekeeper, descended to the starting point, followed later by A. G. Reynolds, who soon marshalled the competitors in their correct order as soon as they arrived, word having been sent by a spectator mounted on a motor bicycle that they should leave Green Street Green immediately and proceed to the foot of Cudham Hill. By this time the number of spectators, nearly all of whom had arrived by motor cycle, had largely increased, and later on in the afternoon some followers of the local pack of hounds, whose hunters were quiet enough to stand the ordeal, took a great interest in the event. One gentleman who wore pink, standing as he did in a conspicuous position, was mistaken by the starter for a danger signal!

An Unqualified Success.

The actual competition was an unqualified success. In Class I., for single-cylinder machines, there was, contrary to all expectations, only one failure. The first machine to make the ascent was the 3½ h.p. Zenette driven by F. W. Barnes. It was the heaviest machine in its class, and though it came up slowly, it did so in good form, the variable gear working faultlessly. C. B. Heath (4½ h.p. Noble) mistook a signal from an official, and, checking his speed, failed to get under way again. On a second attempt he was quite successful. All the rest were most enthusiastically applauded, especially Jacobs, Webb, Lee Evans, Brice, McMinnies, and Le Grand, whose little 2½ h.p. Matchless made a wonderful performance. Its bore is only 70 mm., and the average bore in Class I. was 80 mm. The differences in the times made in this class less the handicap are as follows: J. P. Le Grand (2½ h.p. Matchless), 0; G. Lee Evans (3½ h.p. Rex), ⅖s.; W. G. McMinnies (3½ h.p. Triumph), 2⅗s.; R. M. Brice (3½ h.p.

The Lewisham A.C. Open Handicap Hill-climbing Competition.

Competitors assembled on The Rose and Crown Green. The gradients of Cudham Hill were published in "The Motor Cycle" of March 19th, 1906, as follows: "Soon after the start it is 1 in 4·8, and immediately following a rather awkward curve of the same grade, the concluding bit of cliff of 1 in 4·3 is struck."

e Lewisham A.C. Open Hill-climb.—

rown), 5⅘s.; W. A. Jacobs (3½ h.p. Rex), 7s.; . A. Cooper (3½ h.p. Triumph) and C. B. Heaton h.p. Noble), equal, 7⅘s.; W. F. Thomas (3½ h.p. riumph), 8s.; Stanley Webb (3½ h.p. Triumph), ⅘s.; F. W. Barnes (3½ h.p. Zenette), 18⅗s. All ho made fast times in this and the following ass had considerable difficulty in driving round the orners, especially the higher of the two. In the cond class for multi-cylinder machines all those who ompeted did excellently, but not one could take the orners without switching off. Results: F. W. pplebee (5 h.p. Rex), 0; O. L. Bickford (5 h.p. indec), 2⅘s.; F. Applebee, jun. (5 h.p. Rex), ⅗s.; W. H. Wells (5 h.p. Vindec), 7⅕s.; O. C. odfrey (5 h.p. Rex), 8s.; A. J. Sproston (5 h.p. indec), 9⅗s.; J. S. Shaw (5½ h.p. Phänomen), 3⅖s. (this rider was hampered during his ascent, nd forced to come down on to his lower speed, when e might have gone up on top, he did not, however, aim a second attempt); R. D. Yearsley (6 h.p. airy), 21⅘s. In Class III., for lightweight achines not exceeding 95 lbs., only two machines ade a successful ascent, namely, the 2½ h.p. Fairy nd the 1¾ h.p. Chase; the official results, however, iffer from our own personal notes, in that the results ven are as follows: G. L. Fletcher (2 h.p. Moto-êve) missed fire badly, owing to partly obstructed arburetter, 0; A. A. Chase (1¾ h.p. Chase) came up well with hard pedalling, 4⅘s.; J. V. Robinson (1¾ h.p. Motosacoche), rider dismounted, 7⅕s.; J. B. Beck (2½ h.p. Fairy) came up in good form, 13⅘s. In Class IV. the only entrant failed to ascend the hill. Class V. (passenger motor cycles): W. Gunn (12 h.p. Lagonda), 0; B. Pattison (14-16 h.p. Daneville), 21s. The whole event was highly successful, as out of a total entry of thirty-four, twenty-nine actually took part in the contest. Among the officials were: Judges, Messrs. S. F. Edge, V. Hart, A. G. Reynolds, and E. M. P. Boileau; marshals, H. B. Renner and A. J. Macdonald; timekeepers, F. Straight and J. H. Burley; there were also several gentlemen who acted as stewards.

Owing to an accident sustained some time ago, Miss Muriel Hind was unable to compete.

The officials wish to thank the Sevenoaks Motor Co., who, when they heard that the police had stopped the competition at Carters' Hill, placed a car at the disposal of the hon. secretary (Mr. H. B. Renner) to transport them to Cudham, ten miles distant.

We are also asked to announce that Thursday, April 16th, at the Green Man Hotel, Southend, Catford, 8 p.m., is the date fixed for forming the new S.E. Auto Cycle Association, which will then take over the Lewisham A.C. Every motor cyclist in S.E. district is invited. The proposed subscription (half a guinea) is to include affiliation to the A.C.U. and association with the R.A.C.

CLUB NEWS.

Worcestershire M.C.C.

At a meeting held on Saturday last six new members were ected, making a total of thirty. The next meet will be on aturday, the 11th inst., at Broadway, tea at the Lygon rms; meet at headquarters at 3 p.m.

Hartlepools and District M.C.C.

The opening run is to Richmond on Good Friday, meeting Grand Hotel at 9 a.m.; Saturday, April 18th, meet at aledonian Road, 2 p.m.; Easter Monday, meet at Cale-onian Road, 9 a.m.; Easter Tuesday, meet at Caledonian oad, 1 p.m., destination Yearby Bank, near Redcar, to itness Middlesbrough M.C.C. hill-climb.

Brighton and District M.C.C.

On Saturday next a hill-climbing competition will be held, everal prizes having been given. The hon. sec. would like o state for the information of motor cyclists in Brighton and istrict that the subscription is 5s. per annum and entrance ee 2s. 6d. Headquarters are the King and Queen Hotel. 'articulars of membership can be obtained from the hon. sec., I. Clifton, Ship Street, Brighton.

Richmond and District M.C.C.

At the annual dinner of the above club, it was decided to sk the Marquis de Mouzilly St. Mars to be the president gain, and Mr. A. Carpmael was re-elected captain, and Mr. ancaster elected vice-captain. The officials intend to pursue vigorous programme during the present year; competitions nd week-end trips will be arranged, and it was promised y one of the members to arrange a balloon chase, and pro-ably a substantial prize will be offered to the first "motor ounds" in at the death. Mr. Angell tendered his resigna-ion as hon. sec., which was much regretted by the members resent. A hearty vote of thanks was unanimously passed o him for the able way in which he had carried out the nerous duties of the position. Mr. H. C. King was asked to ccept the office of hon. sec., which he agreed to do.

The meets are generally held at the "Maypole," Surbiton, nd the hon. sec., Mr. H. C. King, Walton House, Surbiton oad, Kingston-on-Thames, will be pleased to hear from any gentlemen residing in the Richmond or Surbiton districts who wish to join the club.

Ayr and District M.C.C.

The opening run of the above club has been fixed for Wednesday, the 15th inst., to Largs. Members meet at head-quarters, Tramway Hall, Prestwick Road, at 10 a.m. It is hoped that there will be a large turnout of members and friends interested in the club. A photograph will be taken before starting.

Hampstead C. and M.C.

The opening run is fixed for Saturday next, the 11th inst., to the Red Lion Hotel, High Barnet. Tea 5.30, concert 7.30 p.m., to which prospective members are cordially invited. Owners of passenger motor cycles would find this a suitable club to join, as ladies are admitted as members, and social events are arranged during the winter season. For further particulars apply to the hon. secretary, C. H. Cave, 3, High Street, Highgate, N.

Motor Cycling Club.

Mr. S. H. Fry has kindly consented to take charge of the organisation of the London-Edinburgh run. All communications respecting this event should be addressed to him at 5, Highbury Grove, N.

Members are requested to note that the competition for the Albert Brown Cup has been postponed from Saturday, May 16th, to Saturday, May 23rd.

The following new members have been elected: Messrs. W. H. Lane, Tom Pears, G. S. White, and J. Winston.

Birmingham M.C.C.

The Easter tour last year was such a great success that it has been decided to hold another this year. On Friday, the 17th inst., at 10 a.m., the start will be made from the Fountain, Hagley Road. Members will stay the night at Llanidloes, Saturday night at Llandrindod Wells, Sunday no fixed programme, Monday Monmouth and Tintern, Tuesday Birmingham. The expenses are estimated at from 30s. to £2. Members desiring to take part should notify Mr. R. W. Duke (captain), 18, Islington Row, Five Ways, Birmingham, by to-morrow, the 9th inst. The new headquarters at the Acorn Hotel, Temple Street, will be used more as a social centre than hitherto. Next Saturday's run is to Edgehill, leaving College Road at 2.30 p.m. Tea at the Round House. The membership of the club at date approaches one hundred.

Club News.—

St. Helens and District M.C.

The first annual dinner of the above club was held at the Fleece Hotel on Tuesday, March 31st. Mr. B. Brewis, B.A., LL.B., the president, occupied the chair, and was supported by Councillors Rudd and Brown, Messrs. Milne, Chorley, McCullock, and Cook. In proposing "The Club," Mr. Brewis made a strong appeal to all local motor cyclists to join the club, and thus become affiliated to the A.C.U. Out of seventy-seven motor cycles registered in the town, he thought a club of much greater numbers ought to be in existence. Councillor Rudd replied. An enjoyable musical programme was gone through.

Members are reminded that the run to Llandudno takes place on April 19th, the return journey being *viâ* Llangollen and Chester. All riders in the district are invited to join in this run.

Western District M.C. (London).

At a meeting of the above club on the 4th inst. it was finally agreed to affiliate to the A.C.U. All motor cyclists in the West of London not already members should join at once and obtain the advantages which affiliation affords. Entrance, 2s. 6d.; subscription, 7s. 6d. Prospective members can obtain full information from the hon. sec., R. R. Babbage, 16, Rigault Road, Fulham, S.W., or, if more convenient, can write or call to any of the following members who represent the club in their particular district: Ealing—Mr. W. Prosser, 73, Loveday Road; Mortlake—Mr. A. R. Canham, Sheen Lane; Chiswick—Mr. C. Gould, 10, High Road; Hounslow—Mr. T. Williams, The Milford Hotel; and Feltham and district—Mr. H. Edwards, 10, Camden Avenue. Several members of the club wishing to attend the races at Brooklands on Saturday and Monday, the 18th and 20th inst., an impromptu run will be held on those dates. Meet at the Milford Hotel, 10 a.m.

Members are requested not to forget the smoking concert at the Milford Hotel to-morrow (Thursday) at 8 p.m. Some of the best talent in the Western district has been secured for this event.

Next competition, April 12th. Speed-judging contest, Henley and back.

Motor Cycle Union of Ireland (Dublin Centre).

An ordinary general meeting of the above was held in Wynne's Hotel, Abbey Street, on March 23rd, Mr. C. B. Franklin (vice-president) in the chair.

A motion was proposed to affiliate the Dublin and District Motor Cycle Club, and it was unanimously decided to do so.

A good deal of discussion then took place as to the different schemes proposed to classify the different machines of various horse-power and weight for the speed trials at Portmarnock, so as to assist the handicappers in securing better and closer racing. It was decided not to fix any hard and fast rule that would debar any machine from competing in all the events, but rather to trust in the handicapping committee entirely to procure close finishes, though it was realised how difficult a matter it is to fix a fair handicap for a 2 h.p. machine three years old and an up-to-date 6 h.p. twin. In order to help the handicapping committee, it was decided to start a competitors' register, and each rider in the different events will have to register his machine at least three days before the event in which he intends to compete, giving full particulars of machine, viz., make of engine, number of engine, bore and stroke, make of machine, also total weight of machine complete without petrol or oil. Any competitor whose machine is found not to agree with the specification under which he enters will be liable to suspension, but an allowance in the weight of his machine of 5 lbs. either above or below weight registered will not disqualify.

Intending competitors are requested to send in the above particulars of their machines to Mr. J. A. Armstrong, hon. secretary, 34, Oakley Road, Rathmines, Dublin, as soon as convenient, and any alteration any competitor may make to the machine during the year affecting any of these particulars must be notified to the hon. secretary. No charge will be made for registering machines.

The opening hill-climb will take place on April 25th. It is proposed to hold a supper at Wynne's Hotel, Abbey Street, on the same date as the hill-climb, at 7.30 p.m., provided sufficient support is received, and all who hope to be present are requested to forward their names to the hon. secretary without delay. Tickets will not exceed 2s., and members' friends are invited.

Southern Counties M.C.C.

It has been decided to hold an invitation run to Limpsfie on Saturday next, starting from the Crystal Palace Para at 3 p.m.; also to Horsham on the 12th inst. The start w be from Purley Corner at 11 a.m.; lunch at the Black Hor

Stockport and District M.C.C.

The above club was successfully formed last week Stockport, with headquarters at the Musey Hotel; t annual subscription is 10s. The following officials have be elected: President, Mr. W. Slater; vice-presidents, Messrs. Gibbons, jun., A. Mugeli, T. Smith, and J. Woodrow; ho treasurer, R. Rogers; hon. secretary, H. Marsden; co mittee, F. Briggs, F. Allen, T. Chadwick, W. C. Norma J. S. Davies, and E. K. Lund.

On Saturday, April 11th, the opening run will take place Knutsford, starting from headquarters at 2.30 p.m. On t 12th inst., to Chester, leaving headquarters at 11 a.m.

Any motor cyclists wishing to join will be made we welcome, and should make application to the hon. secretar George's Road Coal Depot, Stockport.

The North-west London M.C.C.

We are in receipt of the rules governing the North-we London Motor Cycle Club's reliability run from London Coventry and back. The following is a digest of these reg lations: The machines must be standard touring machin subject to the approval of the judges and conforming to t usual definition of touring motor bicycles. Cutouts, fitted, must not be used. [We suggest here that they l sealed so that all possibility of their being used is eliminate —Ed.] To all competitors who complete the journey with the stated schedule time a silver cup will be awarded. Th route will be *viâ* Watford, Berkhampstead, Bicester, Enston Shipston, Ettington, Warwick, Kenilworth, and Coventr The start will take place from Jack Straw's Castle, Ham stead Heath, at 7 a.m., on May 23rd; minimum time fro London to Coventry will be 5h. 25m.; maximum time is 6 There will be checking stations along the route, and there wi be a control at Coventry. The competitors may effe repairs, but these must be done during their runnin tim and they must receive no outside assistance. For entr forms and fuller particulars application should be made t Mr. A. Stanley Phillips, 84, Alexandra Road, South Ham stead, N.W. The trial bids fair to be a success.

The opening runs to Tring on the 4th and 5th inst. we somewhat spoilt owing to the wet weather.

AUTO CYCLE UNION NOTES.

Brooklands Motor Cycle Race.

It has been decided by the A.C.U. to recommend to th Brooklands A.R.C. that the motor cycle race on Saturday the 18th inst., should be a handicap.

Officers and Committee.

The following elections have been made: Chairman, Mr Robert Todd; vice-chairmen, Messrs. J. Lyons-Sampson, C A. Smith, S. F. Bevor, and V. Hart; hon. treasurer, C. A Smith. The various committees will be composed as follows Competitions, Messrs. E. J. Bass, E. M. P. Boileau, B. R Chatterton, A. G. Reynolds, H. P. E. Harding, J. Lyons Sampson, A. Sharp, W. Pratt, W. H. Wells, and J. Hardy finance, H. G. Cove, J. Hardy, H. B. Renner, and E. Nelson legislative, G. F. Sharpe (*ex-officio*), V. Hart (*ex-officio*), R Todd (*ex-officio*), H. G. Cove, W. Pratt, H. P. E. Harding. E. J. Bass, J. Hardy, and B. R. Chatterton.

Permits.

Permits have been granted, provided that no practising is allowed before the events, to the Hertfordshire County A.C. to hold an open hill-climb on April 25th, and the Essex Motor Club to hold a hill-climb on May 9th. A permit has also been granted to the St. Albans Athletic Association to hold motor cycle races on Whitsun Bank Holiday.

An error occurred in our advertisement pages on the 25th ult., relating to the competition organised by Leo Ripault and Co., 64a, Poland Street, and 13a, Broad Street, W. The mistake was the printing of the letters "E.C." after the words Broad Street. Will any intending competitor who has had his letter returned by the Post Office officials readdress it to Broad Street, W.

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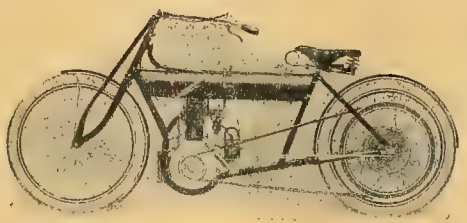

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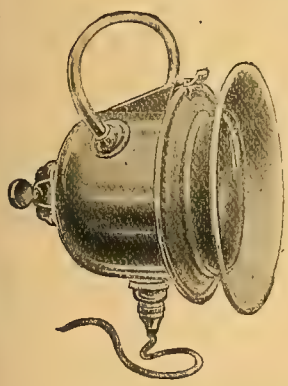
WHAT IS THE USE OF SHOVING



an electric bulb into a tin case with a glass front, and calling it an electric Head Lamp? In the **"ELECTARY" MOTOR CYCLE HEAD LAMP**, a properly constructed lens and reflector project an intensely powerful light ahead. At the recent Cordingley's Motor Show, this lamp was frequently mistaken for an Acetylene Search Light, so intense were the rays emitted. This lamp makes Electric Lighting on a motor cycle practicable.

PRICE, in Polished Brass or Nickel-plate, including Osram Bulb **17/6** each.

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39, KING WILLIAM STREET, LONDON, E.C.
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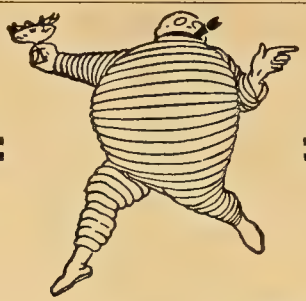

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The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Lightweights and the End-to-end.

3224.]—I have just read a paragraph in last week's issue *The Motor Cycle* by "Ixion" with reference to lightghts in the End-to-end trials. I may mention that it is intention to ride a Douglas 2¾ h.p. twin motor lightght in the Land's End to John-o'-Groat's trial, but I am in favour of having the A.C.U. rules amended. If the ıtweight machine is to hold its own, it must do the same the heavyweight 3 h.p. and 3½ h.p. machines are doing, erwise the public will not look at it.

W. WILSON DOUGLAS.

The Balancing of Petrol Engines.

3225.]—I am considerably surprised that a designer at of the leading motor firms [No. 3188] should have written t he thinks that the vibration in a Quadrant engine is re due to the high compression than to incorrect balancing parts. Might I suggest that he should look up Newton's cisely expressed "Third Law of Motion," which says that ction and reaction are equal and opposite." That is, atever pressure you have in a cylinder due to a gas, or other substance, the piston exerts the same force against gas as the gas exerts against the piston. The same is of the cylinder head. So it comes to this, that the rnal forces in an engine have nothing whatever to do h the balancing of that engine.

R. N. PARRY.

3226.]—I have read with much interest the discussion on "Balancing of Petrol Engines," and would like to add my erience.

am the owner of a 1908 Triumph, and find that if I pt the law laid down, that the weight of the piston, conting rod, etc., should be counter-balanced by weights on flywheels, I have an engine that ought to be a perfect htmare for vibration; but the curious part is that there no vibration at any speed—in fact, I am certain there is a sweeter running machine on the road.

As for the gentleman who in letter No. 3189 states that, r balancing some nameless engine to conform with the ve law, he beat a 3½ h.p. Triumph on a hilly road, I can y say that the Triumph must have been very badly out tune. "Shazbazzik," I notice, owns a 1908 Triumph, ich, like mine, is very much out of balance, but he says hing of the actual behaviour of the engine.

Again, I would like to say a word on the question of "alber non-skid tyres." How is it that no one mentions the mer Cord? I have ridden a pair of these all through the ıter, over snow and the most abominably greasy roads ıginable, and have never experienced the slightest suspicion side-slip. It seems a great pity that so much is said to advantage of foreign products when we have such an ellent article made at home, and as for the wearing quali- of Palmers, I am assured there is no other tyre that can t them in that respect.

n conclusion, allow me to say that I am not in any way erested in either of the firms mentioned further than being horoughly satisfied customer.

ALEX. B. McDONALD.

The A.C.U. Council Meeting.

3227.]—The reference in your leading article to the ection of the proposition for a scheme for unattached riders ses a matter which I believe to be of great importance to A.C.U. No doubt you refer to a resolution moved by Mr. Hall, and which I seconded. But I think that your conjecture that it was thrown out by the provincial delegates is hardly correct. I think the private members of the A.C.U. and the R.A.C. representatives were "solid" against it, probably for financial reasons. My own belief is that some such proposal as Mr. Hall's is the only way to gain the support of a large number of motor cyclists who have no use of any kind for a club. The men I have in mind are undivided in action as far as the pastime of motor cycling is concerned. They do not want the *R.A.C. Journal*, probably they read *The Motor Cycle*; they have little interest in club or inter-club competitions, or reliability, or penalty runs, and still less do they desire to take part in dusty club runs. All they require is the personal satisfaction of being constituents of the leading organisation, and the moral support in difficulty of being members of a large and respectable and well organised authority. If the A.C.U. will not cater for these people other bodies may do so, and I enclose you a cutting from this month's *C.T.C. Gazette* bearing upon the point.

To my mind, the weakness of the A.C.U. as it now stands is that apparently it does not want to be a representative body, but only a governing body.

S. HERBERT FRY.

The paragraph referred to published in the *C.T.C. Gazette* April, 1908:

> To Motor Cyclists.
>
> It will be noticed that a Motor Cycle Committee has been formed, and the chairman finds it rather difficult to get into touch with the motor cyclists, and would, in consequence, be glad to receive communications from motor cyclists, and any suggestions for furthering the interests of motor cyclists in particular and the Club in general will be welcomed by him.
>
> B. P. S. Rooke, Major (Chairman).
>
> Highfield, Heene Road, Worthing.

Chain v. Belt.

[3228.]—Mr. Davies's article in the last issue of *The Motor Cycle* gives the impression that a chain is more dangerous than a belt. We have now been manufacturing chain-driven motor cycles for over seven years, and have never known a single instance of an accident happening through a broken chain. The chief reason why chain drive is not more common is that a machine is more expensive to manufacture for chain than for belt drive, and the ordinary method of fixing the engine in the frame does not hold it sufficiently rigid to maintain a true chain line. A chain, although it costs no more than a good belt, will easily outwear two belts, will not stretch unduly or slip, requires practically no attention, and is unaffected by the weather.

We think that the performances of the P. and M. in open competition have proved that on a properly-designed machine nothing can beat a chain drive for all-round efficiency, but in justice to the riders of our machines we cannot allow a statement from such an authority as Mr. Davies—"To-day, when the belt drive is perfected, the chain is practically dead"—to go unchallenged, as we have now three times as many orders in hand as we have ever had before, and we do not know of a single one of the riders of our machines who would willingly go back to the belt.

PHELON AND MOORE, LTD.

[Mr. Davies also wrote: "It survives on a few machines, and those makers who have stuck to it during the last five or six years turn out thoroughly satisfactory examples of it."—Ed.]

Does an Air-cooled Engine Overheat?

[3229.]—It is to be feared that Mr. Walford does not always practise what he preaches, or, if he does, the results are disappointing. On the occasion of a recent opening club run it was rumoured that he had been seen to empty the water out of his radiator and fill up with cold. Why, why? But, really, I cannot agree that the charge is equally heated in a water-cooled and air-cooled engine, and Mr. Walford's remarks about temperature are surely rather quibbling.

No one advocates a cold engine, and Mr. Edge's 150° Fahr. is probably about right; but 150° Fahr. is not red, or even "pink" heat. It is a matter of degree. Most carburetters have a water jacket or hot air intake; if not, they get warm air from inside the bonnet, which comes to the same thing; the air must be warmed or the carburetter will freeze up, hence I maintain that the heating of the carburetter does affect the case. Also air is very easily heated. Consider how it abstracts the heat from the radiator while passing through it at high speed. R. B. VERNEY.

[We would prefer correspondents to adhere more closely to experiences with motor cycle engines when possible.—ED.]

[3230.]—I read your paper *The Motor Cycle*, and am interested in the correspondence and articles therein on the question of overheating of motor cycle engines. To my mind it is all a question of lubrication. At any rate, that is my experience. We ride our machines here when the shade temperature is from 90° to 110°—for a week this summer we had an average of 111°—and do not suffer from the inconveniences of overheating which some of your contributors experience. Not that our engines do not get hot—mine got so hot one day as to burn a hole in the right leg of my trousers—but we give them sufficient oil to counteract the great heat. It is only commonsense that a piece of machinery running at the great speed of a motor cycle engine requires to be liberally lubricated, apart from the heat generated in the cylinder by the combustion. I ride a 3½ h.p. Triumph machine, 1907 pattern. The maker's catalogue instructs, "Give one charge of oil every twenty-five miles in winter, and every twenty miles in summer." If I ran my machine on those lines I should have a ruined engine first trip. My experience is, a charge of oil not less than every five miles, or half a charge every two or three miles is better still, and if the machine be a new one, the engine should have a charge of oil about every three miles for the first 100 miles or so. Overheating and consequent knocking, in my opinion, is only the engine calling for lubricant, and much harm cannot be done if a little too much oil be given. Of the two evils, too much oil is considerably less than too little. After a run our engines literally sweat oil from the radiating fins down, and I think it helps the cooling. When a man is hot he drinks and sweats, and the air cools him; so with an internal combustion engine. This is our theory and practice here, where our summer temperature is higher—and is a dry heat as well—than in England. I hope some of the English "overheaters" will try the plan and report result through your columns for the benefit of others. In conclusion, allow me to express the pleasure and benefits I derive from reading your paper. W. J. THOMPSON.

New South Wales.

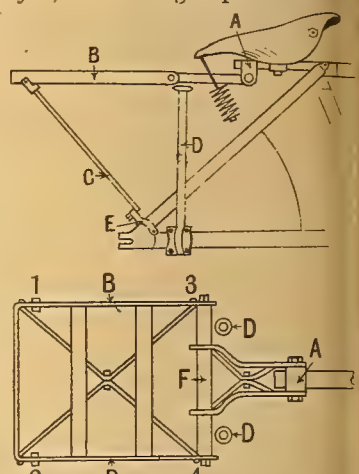
[3231.]—Last week I was riding a 3⅜ h.p. Rex (1907) and towing a friend on a push cycle. We had been averaging twenty-five miles per hour for about six miles, and when ascending a fairly steep hill my friend drew attention to the space between the two valve caps, which was distinctly red hot. Shortly after my friend cast loose as the gradient was too stiff for both of us (even with engine cold), and beyond a stroke or two of the pedals to pick up speed again the machine went on up the hill all right. I have never before seen any engine emitting so decidedly a luminous heat (quite visible although it was not within a quarter of an hour of lighting up time), and have indeed rather scoffed at its possibility. The point, however, I wish to emphasise is this. If an engine can pull when so hot as this (certainly far hotter than ninety-nine per cent. of so-called overheating cases) it shows that the question is not probably one of overheating, but a combination of other circumstances which as far as I remember was Mr. Walford's main conclusion.

Having been away for some time I had not seen Mr. Verney's remarks *re* my criticism of his use of Boyle's Law. As this law expressly postulates a constant temperature during its volume pressure changes, and as the question in "overheating" is, how far do temperature changes have an influence on the volume sucked into the cylinder, I must emphatically say "It is not clear" to me what his remarks mean. H. M.

["H.M.'s" letter was unavoidably held over. Mr. Verney replied to "H.M." in the issue of February 19th, letter No. 3127.—ED.]

Luggage Carriers.

[3232.]—Having noticed the recent remarks on luggage carriers in *The Motor Cycle*, and having experienced difficulty myself in obtaining one from the market to suit my particular requirements, I thought you would be interested to hear my solution of the difficulty.



Luggage carrier is detachable by undoing nuts 1, 2, 3, 4, the cross-bar F. and extension piece are then left *in situ*

A. Clip.
B. Flat metal 1in. by ¼in.
C. Tubular stay.
D. Legs of Simplex stand.
E. Chater Lea clip.
F. Cross tube brazed to extension piece.

The carrier illustrated and described in the issue for Feb. 19th is an exceedingly neat and efficient one, but does it fit those machines which have a horizontal seat-pillar instead of a vertical one? In fact, I found that the position of my saddle was the greatest obstacle to obtaining a good point of attachment. Moreover, I had to dodge the legs of the Simplex stand, and also not interfere with the springs of the Brooks B 105 saddle.

The clips on the back stays are what Chater Lea supply for tradesmen's front carriers; the stays are of tubing with neat yoke end at the top. The top may, of course, be mad of tubing, but I found flat metal easier to work and just a strong. I can stand on my carrier, or use it for lifting th whole machine, sidecar and all. There is no lateral play c account of the cross girder struts. It is at once detachab by undoing three nuts.

I shall be pleased to supply any further details, if required to readers who, on account of the construction of the fram find difficulty in adopting an ordinary carrier.

It may be interesting to add, I also have a luggage-carri over the front wheel.

B. RICHARDSON BILLINGS.

Unattached Riders.

[3233.]—In reply to "I.H.S.," I represent a club whic has at least applied for affiliation. I do not consider it at a necessary for affiliation advantages to be fixed at so nomin a figure as 3s. 6d., and to be applied to unattached riders in fact, it would be distinctly hard on small local clubs wer that the case. "I.H.S." may be quite right when he sug gests that ordinary subscriptions of a local club may be t high, or "the social and sporting side" not as he desires but why should he not obtain affiliation through some othe body whose subscriptions are moderate? An exact parallel t the latter objection came before my notice quite recently when an ex-member of my club applied for readmission, a he desired affiliation benefits, the club in his locality bein undesirable, although living over fifty miles from here practi cally prevented all other club benefits. And I consider quite permissible for a club to admit members, even thoug they live at a great distance from the club, for the purpos of extending to them affiliation privileges at a reasonable rat Perhaps "I.H.S." would care to communicate with me. should be pleased to send him a prospectus of my club.

R. K. HUBBARD,
Hon. sec. Basingstoke and D.M.C.

The A.C.U. and Irish and Scottish Motor Cyclists.

[3234.]—There seems to be some little misconception as to what was really done at the A.C.U. Council meeting respecting the above. It was decided to ask the Scottish Cyclists' Union, who govern motor cycling sport in Scotland, to hand over the reins to the A.C.U., so that the clubs and riders there could join the A.C.U., while retaining "home rule" of local matters. So with Ireland. At present the sport in Scotland is in the hands of a pedal cycle organisation. My information, secured when arranging for the Conference at Lincoln, is that the Scottish and Irish clubs desire to join a purely motor cycling organisation, and the proposal by Mr. Hall at the Council meeting, which I seconded, was simply to endeavour to remove the present obstructions to the riders of the two countries joining the A.C.U. The A.C.U. has now sole control over motor cycling in this country, and as it is the only organisation dealing solely with motor cycling, and entirely independent of motor car organisations except as to sport, those of us who have considered the matter really believe that if the whole of the riders of the kingdom were banded together into the A.C.U. we should be all the stronger. We therefore have made some endeavour to make that possible. The Scottish and Irish riders added to the A.C.U. would strengthen us, and we believe they would be better off. The centre scheme, to be put into operation, will give the two countries full control over their own local affairs, and altogether it seems an opportune time to start the negotiations.

G. J. WILKINSON,
Hon. sec. Lincolnshire M.C.C.

Motor Cycle Taxation.

[3235.]—As an occasional reader of your paper, I have not noticed that any great effort has been made on behalf of motor cyclists to obtain proper representation on the Royal Commission which has just sat, or to obtain for them that proper adjustment of taxation in the new legislation, which will no doubt come within the next few months.

The efforts of a collective body of motor cyclists are what is wanted, or the trade will be injured, and motor cyclists will be dropped on for extra taxes, which are now out of all proportion to large cars, on the score of original cost, horse-power, or damage done to roads.

If any body does represent motor cyclists as distinct from motor carists, I think the following is a good suggestion for it to bear in mind. Numbers of motor cyclists (like myself and several friends) only use their machines during half the year, and if the Revenue tax is increased it would be a great boon if it were issued half-yearly, taken from, say, April 1st to September 31st, or from any one date for six months, as the £1 and £2 game licenses are now issued. Then even if an increase of taxation were made, it would not be felt so much. It certainly is hard to tax a motor bicycle from January 1st, when one may not have ridden it this year yet, and will probably only wish to ride it on fine week-ends during the summer, which works out under the present taxation at the rate of about 1s. a ride.

I hope this will catch the eye of the motor cycle organisation.

FC 91.

Tyres on Heavyweights.

[3236.]—Having been a motor cyclist in Tasmania for two years, with considerable experience of colonial roads, I am writing to you in the hope that you will be able in the columns of your widely read paper to direct the attention of the manufacturers to the necessity of making far stronger tyres for motor cycles of high power. I am the owner of a 6 h.p. Bat, which has given me very great satisfaction in every respect, except in the matter of tyres. It was fitted with —— (26 × 2¼), and the back tyre wore through to the canvas in less than 500 miles. A friend of mine here has a 5 h.p. Vindec, and his —— steel-studded tyre came to the same untimely end after running about 1,200 miles. Our roads are very rough indeed, and require much heavier tyres than the English roads, on which I used to ride for many years. Would it not be possible for manufacturers to make a small car tyre to fit motor cycle rims (26 × 2½) at a cost of £2 10s. or £3? I am quite sure such tyres would be eagerly bought by owners of powerful motor cycles, as such tyres would be far more economical in the long run. The continual tyre troubles we experience out here and read of even on good English roads do a great deal to discourage possible purchasers of motor cycles, and in Australia the original expense of such machines is so much greater than in England, that it is not surprising that people hesitate to purchase a machine which may entail much trouble and expense in its upkeep. Motor cycling is such a delightful recreation, even on our poor roads, that it is a pity any prejudice against it should be caused by a matter which could so easily be eliminated. I hope you will use your influence in giving this point considerable prominence in your paper, as by so doing you will be conferring a great favour on motor cyclists in the colonies.

E. T. GOWER.

[We should like to point out that recently tyre manufacturers have paid a great deal more attention to the making of substantial motor cycle tyres for powerful machines. It is also possible to fit 650 × 65 (26in. × 2½in.) voiturette tyres to certain machines.—ED.]

The Price of Spirit.

[3237.]—I read an article in the London *Daily Telegraph* of March 14th relating to the Thames Conservancy Board's restrictions upon the discharging of motor spirit, and it appears to me that these restrictions are totally unnecessary, considering that, by this time, those who have handled petrol, are fully aware of its inflammable nature.

The general assumption is that the high price of petrol is due to the fact that the importers have a sort of corner, and will not retail to the consumer at a reasonable price, but go in for big dividends, and this keeps the price high.

However, after reading the paragraph mentioned, I have come to the conclusion that it is not the importers who maintain the high price of petrol, but the aforementioned restrictions. The light thrown upon the position by the *Daily Telegraph* is of great importance to owners of motor cycles and cars, and each of us should make it his business to enquire into and remove if possible any unnecessary restrictions that hinder the industry.

Perhaps there are some of your readers who are more familiar with the Thames Conservancy Board's method of dealing with goods of undoubtedly a dangerous nature, and they would be willing to give some valuable information upon this very important question.

FRANK CREALY.

Two-speed Gears and Free Engine Clutches.

[3238.]—Referring to the question of two-speed gear machines, up to the present these have failed to prove their reliability in long-distance work with one exception, which has the disadvantage of being a chain driven machine with a type of engine and frame at variance with the popular and well grounded ideas of the present day. When we see well-known makers who market two-speed gear machines carefully abstaining from entering them in long distance trials, one must come to the conclusion that for reliability they have a long way to go yet. Of course, if chain drive for single machines could for a moment be compared to belt drive, the problem could be regarded as solved by the well-known Phelon and Moore gear.

Further than this, the efficiency of such belt-driven gears as have appeared seems to be a long way from being satisfactory. It really seems that the best way out of the difficulty for single machines will be some form of variable pulley operated from the saddle, with perhaps a clutch in the back wheel and sufficient engine power to do anything with, say, a 6½ to 1 gear, which is about the lowest we can risk with direct belt drive and that power of engine.

This will necessitate some means of tensioning the belt other than the impossible jockey pulley. We want two-speed gears, but without loading up single cylinder machines until they are as heavy as the twin-cylinders, and without diminishing their speed on hills and on the level by a factor which varies according to the condition of the gear and its correctness of design.

But in any case, before these devices catch on we must see makers entering fleets of such machines in long-distance trials, and gaining as many gold medals as their less complicated sisters. And we must see them also able to take their part in purely speed hill-climbs, thereby demonstrating that the two-speed gear has not interfered seriously with the amount of power reaching the road wheels. All of which things are afar off, I fancy. In the meantime, we must be content with the variable speed pulley.

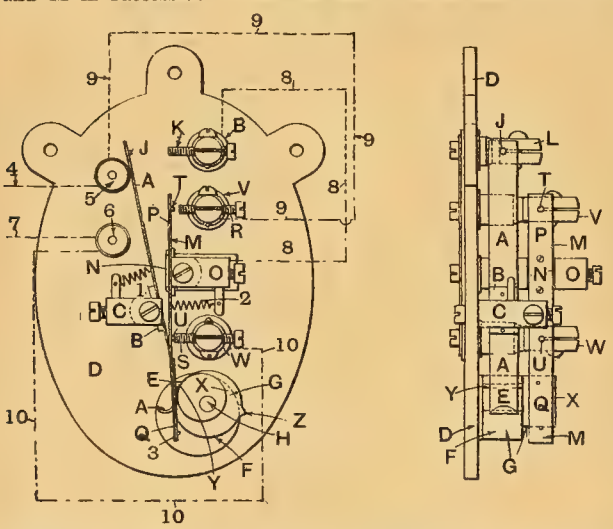
H.

RECENT PATENTS.

By ERIC W. WALFORD, F.C.I.P.A.

The R.O.M. Contact Breaker.

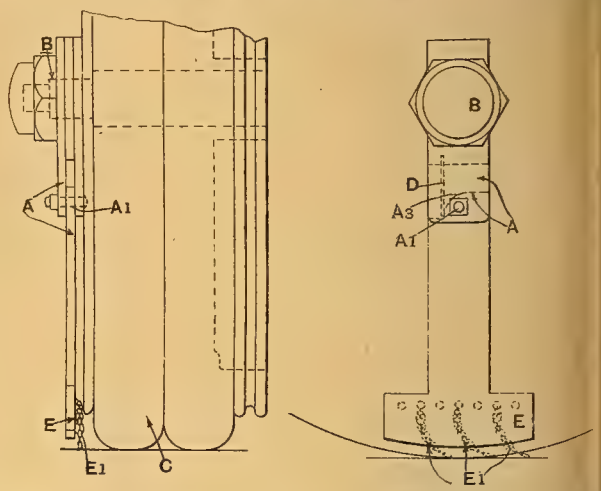
THIS is the invention of Mr. R. O. Mitchell, and is being marketed by the Continental Motor Co., of 32, Rosebery Avenue, London, E.C. The following is a description of the contact breaker as applied to a two-cylinder engine: One blade A, which is the ordinary blade, is hinged at an intermediate point B on a standard C secured to a brass plate D, which is adapted to be secured in place and to receive a cover in the ordinary way. This blade A engages at the end E with one face F of a cam G mounted on the usual shaft H, and it is furnished at one end with a platinum point J to co-act with a platinum-tipped contact screw K, supported in an insulated terminal L secured on the base plate D. This mode of pivoting the blade A ensures rapid and certain firing due to the leverage of the end carrying the joint J. The other blade M is pivoted at an intermediate point in its length at N on an insulated standard O fixed to the base plate D, so that two arms P and Q are obtained. The upper arm P co-acts with a contact screw R, and so does the lower arm Q with another contact screw S, for which purpose, respectively, the arms P and Q are provided with platinum points T and U, and the contact screws R and S are platinum-tipped and are supported in insulated terminals V and W, both fastened to the base plate D, all in the same fashion as the corresponding parts J, K, and L of the blade A. The end of the arm Q co-operates with another face X on the aforesaid cam G. The faces F and X of the cam G are proportioned to correspond with the angles of the engine cranks and to operate the respective blades A and M in succession. Thus the face F takes the form of a



cam proper, with two projections Y and Z set at the proper angle apart, whilst the face X is fashioned as an eccentric. The blades A and M are held in contact with the cam G by springs 1 and 2 secured to them and to the standards C and O, whilst the blade M is insulated from the cam G by a fibre or other suitable block 3 secured to it. The wire 4 for one cylinder (say the back) is connected to an insulated terminal 5 on the base plate D, which plate also carries a terminal 6, to which the wire 7 for the other cylinder is connected. The terminal L and the standard O, the two terminals V and 5, and the two terminals W and 6 are electrically connected by strips 8, 9, and 10 respectively, represented by broken lines. Therefore, when the cam G is revolving, the blades A and M are alternately actuated to engage and disengage their contact screws K and R and S, and so make and break the electric circuit, thereby producing the ignition in the cylinders synchronously; that is to say, the blade A is actuated by the cam face F with the points Y and Z to make and break contact by its joint J and screw K twice every revolution, whilst the blade M, through the influence of the cam face or eccentric X, alternately makes and breaks contact at its points T and U and corresponding screws R and S, and in this way the current is switched to the proper cylinder by the blade M.

A Chain Non-skid.

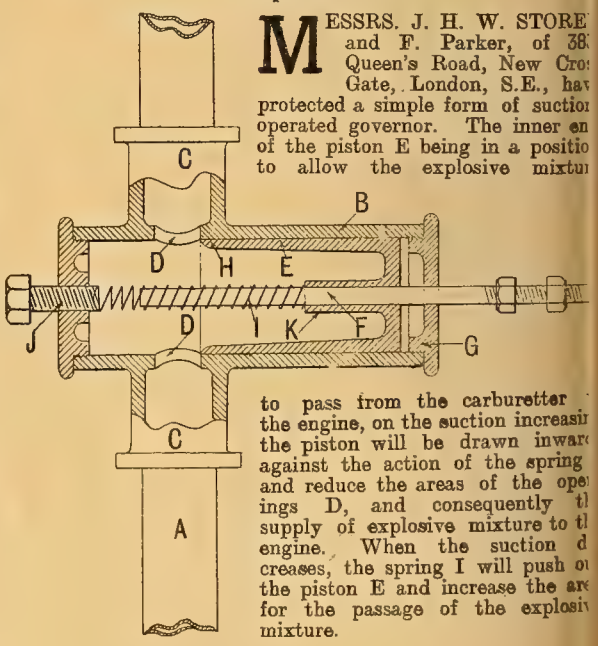
MR. H. HARRIS, of 59, Vale Road, Finsbury Park, London, N., is the inventor of this device. A vertical bar A jointed as at A^1 depends from the axle B of the wheel C to within a short distance of the ground, a spring D being arranged between the two parts of the bar A in order to render them practically a flexible bar capable of bending rearwardly. The bar A carries at its lower extremity a cross member E, from which chains E^1 are suspended, and these chains are of such a length as to trail upon the ground so that in the event of the vehicle tending to skid or side-slip the wheel or tyre comes into contact with



the chains, which arrest further progress, the said chain working under the tread of the tyre. It is preferred that the links increase in size from the free extremities of the chain so that the latter act in the capacity of wedges. As the operation takes place the bar A will gradually bend rearwardly, and as soon as the chains E^1 again clear the wheel or tyre the spring D will return the parts to their normal positions by bearing upon the curved or cam part A^3 at the upper extremity of the lower portion of the rod A.

A Simple Governor.

MESSRS. J. H. W. STORER and F. Parker, of 38 Queen's Road, New Cross Gate, London, S.E., have protected a simple form of suction operated governor. The inner end of the piston E being in a position to allow the explosive mixture



to pass from the carburetter to the engine, on the suction increasing the piston will be drawn inwards against the action of the spring and reduce the areas of the openings D, and consequently the supply of explosive mixture to the engine. When the suction decreases, the spring I will push out the piston E and increase the area for the passage of the explosive mixture.

MOTOR BICYCLES FOR SALE.

VINDEC Special Motors from Stock.—Woodman's, Peterborough.

5 h.p. Twin Rex, spring forks, spring seat-pillar, in grand order; £18.

3 h.p. Clarendon, new tyre on back wheel, new belt, new coil; £14.—Balmforth, Motor Engineer, Ormskirk.

£6 10s.—Rex, 3½ h.p., spray, good order, —Element, Eardisley, Hereford.

ANGLIAN Motor Cycles, with simplest and most practical two-speed gear.—Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

SIDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London agents, H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W.

1907 3½ h.p. Triumph, magneto ignition, excellent condition; £32, or near offer.—Below.

3½ h.p. Motor Bicycle, Minerva engine, low frame, long bars, and back position, just built; £30.—Below.

2¾ h.p. Hulbert-Bramley, Minerva engine, excellent condition; must be sold; £15.—Below.

1905 3½ h.p. Rex, accumulators, ignition, good working order; what offers?—Below.

2¾ h.p. Motor Bicycle, Brown engine, low frame, new, just built; bargain, £25.—Below.

2 h.p. Phœnix, in good working order; £8.—The Hulbert-Bramley Motor Company, 96, Upper Richmond Road, Putney.

2 h.p. Minerva, tyres as new; £8, offers. —Particulars, Coulson, Barnburgh, Doncaster.

£5.—2¾ h.p. Werner, wants re-assembling; bargain. — Roberts, 7, Albany Road, Wimbledon.

TRIUMPH, late 1907 model, guaranteed perfect throughout; £32; approval. —Parker, Melbourne, Derby.

4 h.p. Antoine Cycle, splendid condition; an honest bargain at an honest price, £20.—Particulars, Sanders, Buxton.

TRIUMPHS, 1908 models in stock; liberal allowances for second-hand machines, any make.—Parker, Melbourne, Derby.

3½ h.p. Clarendon, good running order; price £10, or near offer.—Stanbury, Willowhayne, Worcester Park, Surrey.

FOR Sale, 3½ h.p. Quadrant, 1907 pattern, like new, everything perfect; £20.—Goulden, Clarendon, Canterbury.

2¾ h.p. Clyde, splendid order, horn, tools, lamp (separate generator); £10.—Clark, George Street, Ryde, Isle of Wight.

GENN'S Famous 2¾ h.p. Minerva, just overhauled; sacrifice; buying tricar; 15 guineas.—6, Vineyard Hill, Wimbledon.

TRIUMPH, 1906, little used, enamelling and plating perfect, climb Devonshire hills; £26. — Metherell, Newton Abbot.

5 h.p. Twin Rex, four-speed gear, footboards, Grose non-skid, perfect condition; trial; £24.—63, Overhill Road, East Dulwich.

LIVERPUDLIANS! — Call at 74, Bold Street, and see latest models of Triumph and Roc motors.—Hitchings are the sole agents.

TRIUMPH, 3½ h.p., 1907, magneto, spares, also tube, no worse than new; given up riding; £35.—No. 9,504, *The Motor Cycle* Offices, Coventry.

2¾ h.p. Minerva, Chater-Lea frame, long handle-bar, condition as new, good tyres; bargain, £11 11s. — Egbert Spearman, Bishop's Stortford.

9 h.p. Spring Frame Bat, gas headlight, electric light, spare tyres, tubes, and all other spares, etc., practically new; only reason for sale, bought car; will guarantee six months.—Apply, Box No. 9,539, *The Motor Cycle* Offices, Coventry.

BOOTH'S MOTOR EXCHANGE

for Fair Dealings.

New Sidecars for Old.

We can give instant delivery of all models Mills-Fulford Sidecars, Castor Wheel or Rigid. Your old sidecar or other goods taken in exchange. Special terms to cash buyers.

New Tyres for Old.

Genuine Continentals.	Cover.	Tube.	Genuine Continentals.	Cover.	Tube.
26×2	24/-	9/6	28×2	25/-	10/-
26×2¼	25/6	10/-	28×2¼	27/3	10/6
26×2½	29/6	11/-	28×2½	29/9	11/3

3/- allowed for your old covers, and 2/- for old tubes.

Special Clearance Tyres.

Peter Unions, 24×2, 2¼, and 2½, 15/- each. Royalty tyres, heavy Clincher pattern treads, 26×2, 11/6; 26×2¼, 12/6.

NON-TREMBLER. MIDGET TYPE.		SYNTONIC TREMBLER. 3,000 revolutions.	
One cylinder	10/6	One cylinder	17/6
Twin cylinders ..	21/-	Twin cylinders ..	35/-

We make a liberal allowance for your troublesome coil in part payment. Buy a FULLER and your misfiring troubles are over.

New Accumulators for Old.

	Large stock.		Genuine Fuller's.
C2 type	17/-	Midget type ..	16/-
Rex type	16/-	Minerva type ..	17/-

Every cell guaranteed.

Patent non-corroding terminals. Made to withstand the vibration of a motor cycle. Large stock. Quick delivery. We allow 5/6 for your old accumulator in part payment.

BOOTH'S "GRIPSKIN" BELT.

Enormous success. Made from selected parts of hides, and cut to a correct angle. The best belt at present on the market. Quality high, price low We send on appro. on receipt of P.O.

½in., 9d., ¾in., 10½d., ⅞in., 1/-, 1in., 1/1.

Special terms to the trade.

Genuine Palmer Tyres.

Genuine Palmer Tyres.

Genuine Palmer Tyres.

Large Stock. Send for prices.

Your old cover and tube taken in part payment.

ACCESSORIES.

Motor Mudguards, complete with stays and screws ..... 3in. 2/11, 4in.	3/6
Silent Silencers, suit engines to 5 h.p., no back pressure	3/3
Fifty pairs Xl'all Spring Forks (1908).	
Massive Horns, deep tone	3/9
Double-twist Horns, terrible noise	4/9
Voltmeters, watch pattern	4/1
High-tension Wire ..... per yard	1/1
Low-tension Wire ..... „	-/5
Best Mica Plugs	1/1
Long Handle-bars ..... 4/9 and	5/6
Quantity Stanley Belting, all sizes.	
New Motor Pedals, 4½in. wide .. per pair	4/6
Hellior Searchlights, detachable magnifying mirror lens, fixed or separate generators, sold elsewhere 25/-	12/6
Gas Lamps, separate generators	5/3
Brooks B100 Saddle	11/6
Box of Brass Terminals	-/9
Patterns for 4 h.p. Cylinder M.O.V.	40/0
Three Second-hand Plain Coils	8/-
Twin Invicta Trembler Coil	12/6

Send for Accessory List.

WE ARE WANTING

Second-hand Sidecars, 1907 Triumph, 4 h.p. Roc, Twin Vindec-Special, Lightweight F.N., four-cylinder F.N., Twin Jap, good Gramaphone, Royal Barlock Typewriter, Fit-all Two-speed Gear or other gear.

CASH WAITING FOR ABOVE.

HARRY BOOTH,

Coronet Works, Wade Street,

HALIFAX.

Telephone 198Y.

MOTOR BICYCLES FOR SALE.

3 h.p. Werner, like new, splendid climber, grand condition, tyres equal new; £14 10s., or close offer. — Gourd, South Street, Exmouth.

ROC and N.S.U. Agent.—In stock: 4 h.p. Roc, with two-speed gear, 3 h.p., 3½ h.p., and 6 h.p. N.S.U.'s.—Hodgson, 10, Horton Road, Bradford.

6 h.p Twin Rex, with forecarriage, two speeds, rubber covered footboards, patent silencers; £22, or exchange.—Farrar, Square Road, Halifax.

JULY, 1907, 6 h.p. twin N.S.U., magneto, two speed, new belt, tyre, rigid sidecar, lamps, etc.; £55.—Gates, 14, Manchester Road, Sheffield.

REX, 2 h.p., vertical engine, spray, Dunlops, £4, or exchange; wanted, two-speed gear, for 2¾ h.p. De Dion.—Scott, 3, Southwark Street, London.

LIGHTWEIGHTS.—Cash or terms, 2½ h.p. Peugeot, new, £18; 2½ h.p. Rover, magneto, new, £20; also sidecar; particulars, stamp.—Wellesley Works, Rake, Hants.

FOR Sale, Triumph, 3½ h.p., 1907, standard, magneto, perfect condition, heavy tread on back tyre; price £33, no offers.—No. 9,438, *The Motor Cycle* Offices, Coventry.

3½ h.p. Minerva, spring forks, Peto and Radford accumulators (new), exhaust lifter, splendid condition; £18 18s.; owner bought car.—Sharpe, High Street, Bridlington.

FOR Sale, bargain, 5 h.p. cycle, Peugeot engine, perfect condition, new 2½in. tyre, plain coil, not spring forks, two years old; £21. — Oxley, Great Ancoats, Manchester.

FOUR-CYLINDER F.N., 3½ h.p., splendid condition, had very little running; cash £18, rock bottom; no time for bargaining or offers.—To be seen at F.N. Depot, London.

FOUR-CYLINDER F.N., 1906, practically new, not ridden last twelve months, splendid hill-climber; £22, including all accessories. — A.F., Hillside, Monument Hill, Weybridge, Surrey.

NOTICE.—2¾ h.p. Royal Enfield, Minerva engine, mechanical inlet, girders, Longuemare, Dermatine, Bassee-Michel, reliable; £12; ride 40 miles.—Reilly, 21, Kincardine Street, Dundee.

MOTOR Bicycle, M.M.C. engine, 3½ h.p., Chater-Lea frame, first-rate order; Century tandem tricar, 5 h.p. Aster, good condition, many spares; what offers?—C.S., 1, Castlebar Road, Ealing.

ILFORD.—£10; 2¾ h.p. Brown, 26in. Dunlops, two Sentinels, and Duco, all new, B100, footrests, large gas lamp, stand, horn, and all accessories, ready tuned for a tour.—51, Richmond Road.

3 h.p. Royal Sovereign, M.M.C. pattern, practically new Continental tyres, cantilever, saddle-pillar, New Departure hub, complete with tools, engine in good condition; £11.—Little, 332, London Road, Croydon.

VINDEC Special, 5 h.p., light Tourist Trophy model, first-class condition, and thorough running order, winning machine in ten important competitions last year; £38.—Owen Summers, 46, Cornhill, E.C.

2½ h.p. Rover Motor Bicycle, practically new, not ridden 100 miles, low build, climb anything, only wants seeing, in grand condition, all accessories; an absolute bargain, £20, or very near offer; worth double.—Abbott, 37, Abbotts Park Road, Leyton, Essex.

EDINBURGH. — Alexander's Motor Exchange, 110, Lothian Road, the largest variety and stock of motor cycles in Scotland; agents for Quadrant, Griffon, Rex, N.S.U., Adler, Roc, Minerva, Vindec, and Moto-Reve motors; repairs, spare parts; exchanges, easy payments.

MINERVA and Rex. — We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

MOTOR BICYCLES FOR SALE

2 h.p. Peugeot, lightweight, fine condition; £10, or near offer.—Below.

3½ h.p. M.M.C. and Liberty Sidecar, good condition, powerful; £15.—Below.

3¼ h.p. Antoine, Brooklands, new condition, Price's stand, carrier, etc.; take push cycle part payment; 13 guineas.—Worland, 58, Rathbone Street, Canning Town.

HUMBER Motor Cycle, 2¾ h.p., capital order; £10.—A. Hook, St. Mary Cray, Kent.

SINGER, 2½ h.p., gear driven, magneto, spring pillar; £8.—357, King's Road, Chelsea.

SWIFT, 2¾ h.p., two speeds, good condition.—F.H., 33, Nassington Road, Hampstead.

£5 5s.—Werner, 1¾ h.p., spray carburetter, Bowden exhaust, stand.—122, Gipsy Hill, S.E.

ROC, 1907, military model, 4 h.p., free engine, like new; £25.—16, Mayfield Avenue, Halifax.

1908 Triumph, latest model; full particulars.—9,604, *The Motor Cycle* Offices, Coventry.

3 h.p. Triumph-Fafnir, accumulator, splendid condition; £16 10s.—Werry, 200, Old Street, E.C.

4 h.p. Roc, two speeds, free engine, late 1907, new condition; £35. — Cross, jeweller, Rotherham.

3½ h.p. Magneto Roc, in good order, clutch, Dunlops, etc.; £15. — 47, Station Road, Redhill.

3½ h.p. Quadrant, 1907 pattern, like new, everything perfect; £20.—Goulden, Clarendon, Canterbury.

SPLENDID 3 h.p. Quadrant, £14; Excelsior, 2½ h.p., £5. — L. Argent, 3, Exchange Buildings, Stroud.

2¾ h.p. Motor Bicycle; bargain, £12; good condition, fittings.—17, Clifton Road, Southall, Middlesex.

CHESTER.—5 h.p. Twin Antoine, and strong trailer, all in perfect order; £25, or offers.—Monk's Garage.

3 h.p. Quadrant Bicycle, in going order; £7 17s. 6d.; new tyre.—139, Great College Street, Camden Town.

3½ h.p. Brown, fairly low, new tyres, horn, and belt, fast and reliable; £20.—Richmond, chemist, Chorley.

£12.—Nearly new 2½ h.p. Bradbury, 120 lbs., splendid order, tools, etc.; cost £35.—22, Hambleton Terrace, York.

£10, or £8 and push bike.—2½ h.p. Minerva, low, 26in. wheels, just overhauled.—14, Belgrave Road, Ilford.

3½ h.p. White and Poppe, magnificent machine; see this before settling. —M. Dixon, 15, Newgate Street, E.C.

F.N. Lightweight, latest pattern, Bosch magneto, very little used; £25.—Coombes, 737, High Road, Tottenham.

HUMBER Motor Cycle, fast and reliable, ready for tour; £8.—No. L2,052, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

£9 15s.—2¾ h.p. Werner, Dunlops, V belt, fast hill-climber; 50 miles trial; bargain.—201, Kentish Town Road, N.W.

2¾ h.p. Minerva, spray, Dunlops, perfect, reliable, spares, tools; £12 10s. — 53, Grange Park Road, Thornton Heath.

3½ h.p. Rover, Palmer cords, belt-driven, splendid condition; bargain, £14.—Nash, Suffield Park, Cromer.

TRIUMPH, magneto, late 1906, perfect condition and running order; £25. —Jarrett, 18, Prestonville Terrace, Brighton.

1¾ h.p. Minerva, Chater-Lea low frame, in splendid running order; £5 15s. —S.B., 36, East Street, Holborn, London, W.C.

TRIUMPH, 3½ h.p., magneto, first-class certificate 1,000 miles trials, Shamrock-Excelsior tyres, Advance adjustable pulley, belt, valves, and other spares, only done 2,500, as good as new; £32.—W. Pople, Newhouse, Perth.

A Square Deal Guaranteed.

CASH, CREDIT or EXCHANGE.

4½ h.p. G.B., magneto, Nala two speeds..	£37 0
3 h.p. FAIRY, twin, like new	19 0
3¼ h.p. REX, 22" frame	11 0
5½ h.p. REX-DE-LUXE, twin tyres	26 0
4½ h.p. Twin MINERVA, 1907	27 0
4-5 h.p. Twin GARRARD, Maxfield	16 0
3½ h.p. BAT, spring frame, 26in. wheels..	18 0
5 h.p. Twin KERRY, very low	22 0
5 h.p. Twin PEUGEOT, lovely goer ..	23 0
5½ h.p. Twin REX, lovely goer	20 0
4 h.p. ANTOINE, magneto, 1907	22 0
3½ h.p. 1906 REX, spring forks, etc.	15 0
3½ h.p. 1905 REX, spring forks, 26" wheels	13 0
3 h.p. TRIUMPH, lovely goer	25 0
3 h.p. MINERVA, vertical, M.O.V.	12 0
2½ h.p. MINERVA, spray, 26" wheels....	11 0
2½ h.p. TRIUMPH, smart goer	12 0
3 h.p. KERRY, fine machine	12 0
2½ h.p. JAP, spray, footrests	11 0
3 h.p. ARIEL-MINERVA, M.O.V., 26" wheels	14 0
2¾ h.p. BROWN, vertical, M.O.V. spray	12 0
2¾ h.p. HUMBER, spray, trembler	10 0
1¾ h.p. MINERVA, spray, 26" wheels....	6 10
2 h.p. QUADRANT, spray, smart	7 10
2½ h.p. HUMBER, spray	9 0
2½ h.p. REGAL, vertical, spray, 26" wheels	9 0
2¼ h.p. WHITELEY, spray, vertical	9 0
2¼ h.p. CYCLONE, spray, vertical	7 0

New principle longest life.
⅜" 7d., ½" 8d., ⅝" 9d., 1" 10d. per foot.

TRICARS.

3½ h.p. QUADRANT, Phœnix, two speeds	£18 0
5½ h.p. REX, twin engine, two speeds ..	22 0
4½ h.p. Water-cooled Quad, two speeds ..	16 0

"CAMEL" Serrated Rubber and Canvas V Belting. Embodies all good points of other rubber belts without their drawbacks.

NOTE.—The prices are between 33% and 50% less than other makes. Good rubber belts need not be dear. Send for sample length on approval. ⅜" 9d., ½" 10d., ⅝" 1/-, 1" 1/2 per foot. Any length cut.

ENGINES.

2 h.p. Minerva	£2 10	3 h.p. King ..	£2 19
3½ h.p. Quadrant	4 10	3 h.p. De Dion	4 0
3½ h.p. Standard	3 3	3½ h.p. Lucas ..	2 19
3 h.p. X.L.	2 19	2¾ h.p. Universal	1 10
3½ h.p. Quadrant	6 10	4½h.p. Aster....	5 10
2¾ h.p. Antoine and frame			2 10
3½ h.p. Rex and frame			4 10

SIDECARS.

Rigid	£3 10	Ariel, rigid.....	£3 10
Montgomery	4 10	British Standard	5 0

ODD BARGAINS.

N.A.B. Spring Seat-pillar	6/6
Osborne Free-engine Clutch	25/-
Stevens Tricar Clutch, like new.....	25/-
Lycett's L72 Saddle; quite new.....	6/9
"Vim" Motor Cycle Rear Brakes	6/-
Tricar Horn, flexible tube	8/6
Water-circulating Pump, good order.....	9/6

CONTINENTAL TYRES.

24 or 26×2in. ..	24/3	28×2in. ..	25/6
24 or 26×2¼in. ..	28/9	28×2¼in. ..	30/-
24 or 26×2½in. ..	33/-	28×2½in. ..	35/3

3/- allowed on old covers, and 1/6 on old tubes in part payment.
Traders and Agents send for discounts.

CANTILEVER SPRING SEATS.

Luxurious and strong. Fit any machine. 10/- each.

200 LYCETT'S "LIGHTNING" STANDS.

FIRM. RIGID. STRONG.
For either 24in., 26in., or 28in. wheels.
Note the price—4/9 per pair.

Send for Price List of Accessories. Pounds saved

HIGH-CLASS MOTOR CYCLES WANTED FOR CASH. MONEY WAITING.

E. FARRAR,
Albion Works, Square Road, HALIFAX.

ADVERTISERS—Please note that Friday is the latest day we can receive advertisement copy for the following week's issue

MOTOR BICYCLES FOR SALE.

STOCKPORT.—4 h.p. Twin N.S.U., magneto, two-speed, suit sidecarist; cost £55 15s. last year, 30 guineas.

STOCKPORT.—3 h.p. Fafnir, magneto, new 2½in. tyres, in perfect tune; 19 guineas.

STOCKPORT.—4½ h.p. 1907 Roc, special military model, free engine, 2½ tyres, unscratched; 28 guineas.

STOCKPORT.—See illustration and description of Midget Bicars, page 5 (advertisements) last week.

STOCKPORT.—Easy Payments and Exchanges arranged on any make of machine, new or second-hand. Midget Bicars included.—Lund and Davies, Heaton Lane, Stockport.

2¾ h.p. Ariel-Minerva, complete, perfect, very little ridden; inspection invited; £15 cash.—67, Chestnut Grove, Balham.

TRIUMPH, 3½ h.p., 1907, magneto, equal to new, spares; £35 cash, or close offer.—W. Denham, Low Mill Foundry, Darlington.

TWIN Antoine, 5 h.p., good order, very fast, and slow in traffic, tools, etc.; offers.—R. Abell, 15, Holmesdale Road, Sevenoaks.

1908 New Phelon and Moore, Grose non-skid on back wheel; giving up motoring; cash £40. — 8, Oxford Road, Southport.

EASTER.—Reynolds can offer some good bargains in motor cycles for Easter; lowest prices and perfect.—Motor Dealer, Pirbright.

HUMBER, 3 h.p., two seats, two accumulators and footboards, tyres practically new; £10.—J. E. Rickett, Hayleys, Epping, Essex.

NEW 3½ h.p. 1908 Standard Minerva, not run 300 miles, complete with spares; £25; buying twin for sidecar.—Fairhaven, Milford-on-Sea.

2¾ h.p. F.N.; £15; new back tyre and Watawata belt, in thorough going condition.—Apply, Connell, 224, Wood Street, Walthamstow.

£9.—3 h.p. Mitchell, Longuemare, very strong, in going order, horn, lamp, and stand, complete.—Sumner, 593, Bury Road, Bolton, Lancs.

1907 Twin-cylinder N.S.U., two-speed, free engine, magneto, spring forks and saddle; cost £57.—Motorist, 30, Bradley Road, Trowbridge.

2 h.p. F.N., girders, low position, splendid running order; £7 10s., or near offer; no time for riding.—4, Cambridge Terrace, Rickmansworth.

TRIUMPH, 1907, 3½ h.p., magneto, perfect, not left works since plating, overhauling; seen in Leeds; £36. — Windle, Ovenden, Halifax.

HANDSOME Lightweight (1¾ h.p.), spray, new tyres, seized for debt; must sell; £6, or offers. — L. Jackson, Dean Head, Audenshaw, Manchester.

2¾ h.p. Zedel, Chater-Lea frame, Palmers, Watawata, splendid condition, excellent climber; £14; bike part.—43, Kilmorie Road, Forest Hill.

5 h.p. Vindec, Truffault, Advance pulley, footrests, new back tyre, Premier searchlight; £30; owner buying car. — Heywood, Oakwood, Chislehurst.

TRIUMPH, 3½ h.p., magneto, fully guaranteed, 1907, absolutely brand new, fresh from factory; £37 10s., genuine bargain.—Milburn's, Marlborough.

4 h.p. Military Model Roc, two speeds, clutch, magneto, new non-skid, variable pulley, spares, all good order; £28.—Innes, Sutton Valence, Maidstone.

MINERVA, 2¼ h.p., B.S.A. throughout; Longuemare carburetter, Palmer, nearly new, spares; £10; evening. —57, Hartham Road, Holloway, N.

3½ h.p. Jap, good as new, spring forks, very reliable, splendid hill-climber; trial allowed; £25; owner getting car. — G. Neame, Luton, Faversham, Kent.

TWIN-CYLINDER 4½ h.p. Motor Cycle, 26in. by 2in., Palmer tyres, in excellent condition; must sell; £10 10s.—W. H. Dixon, 36, Tollington Road, Holloway, N.

MOTOR BICYCLES FOR SALE.

3½ h.p. Tourist Rex, not ridden 60 miles, as new; £25.—Todd, grocer, Pocklington.

2¾ h.p. Alldays Motor Bike, vertical engine; £10 10s.—190, Mellison Road, Tooting.

£10.—2¾ h.p. Minerva motor bike, M.O.V., in good order.—Jones, ironmonger, Lichfield.

ON Sale, 3½ h.p. Rex, long bars, low seat, new Peter-Union on back; ready for road; £12.

ALSO Beeston Tricycle, about 3½ h.p., magneto, Longuemare, 2½ Clipper tyres; £6, or first near offer.

EDISON Phonograph and about 50 records, two horns, stand, complete; £2 10s.—801, Oldham Road, Newton Heath, Manchester.

2¾ h.p. Minerva (inclined); £8 10s., or near offer.—79, King George Street, Greenwich, S.E.

£5.—Quadrant Autocyclette, complete, 1¾ h.p., spare cover, etc.—Leach, Bury Green, Ware.

2½ h.p. Ormonde, in good running order; £8 10s., or near offer.—Victor Wood, Beeding.

ROC 4 h.p. Military Model, magneto, mechanical valves, free engine clutch; £22 10s.—Below.

ROC, 3½ h.p., free engine clutch, magneto; cheap, £18 10s. — Whittle, 41, Skelbrook Street, Earlsfield.

3½ h.p. Norton, magneto, spring forks, long and low; cheap; £20.—Fortune, solicitor, Harrogate.

£15.—3½ h.p. Riley motor bike, 2¼ Palmer tyres, in splendid condition.—Jones, ironmonger, Lichfield.

MINERVA Lightweight, absolutely like new; £12, or offer.—62, Colvestone Crescent, Dalston, London.

1907 3½ h.p. Rex, lamp, horn, tools, complete, not done 500 miles; £19 10s.—Richard, Dolafon, Corwen.

3 h.p. Werner, in extra good condition, Dunlops, Brooks B100, scarcely used.—285, Rochdale Road, Bury.

MINERVA, 2½ h.p., Palmer, good condition; any trial; bargain, £8.—6, Islip Street, Kentish Town, N.W.

3½ h.p. Bat, spring frame and forks, fast and reliable.—1, Colville Square Terrace, Talbot Road, W.

2¾ h.p. De Dion, spring forks, tyres, and throughout good condition; £10.—Wilcocks, Trebartha, Launceston.

6 h.p. Deckert Racing Motor Bicycle, perfect condition; £12 10s. — Alfred Mayer, 32, Pembridge Gardens, W.

6 h.p. Twin Zedel, ball bearing engine, prize winner, very fast, complete; £19 10s.—98, Potternewton Lane, Leeds.

4 h.p. Antoine, Chater-Lea fittings, Dunlop and Grose non-skid tyres; sacrifice £19.—47, Camden Grove, Peckham.

3½ h.p. Vindec, magneto ignition, Palmer 26 by 2½ tyres, B100 saddle; £21.—Eagles and Co., High Street, Acton.

2¾ h.p. De Dion, Chater-Lea throughout, new Palmer tyres, splendid condition; £6 10s.—42, Forest Lane, Maryland Point.

MANCHESTER.—3 h.p. Bradbury, Longuemare, trembler, two pulleys; bargain, £12 10s.—"Motorist," 158, Chorlton Road.

FINE Twin Rex, spring forks, low frame, long bars; must be sold; £19. — Garaged Harry's, Carlton Street, Halifax.

3⅜ h.p. Rex, with Millford forecar, Osborne free engine, spring forks; £24, or separately.—Priest, Godstall Lane, Chester.

SUSSEX.—2¾ h.p. Alcyon, spring forks, footboards, perfect condition, like new; 20 guineas.—Pratt, 17, Hartington Villas, Hove.

MINERVA, 4½ h.p., twin, 1907, new, with all spares; cost £43, will take £30, or near offer.—84, Stephens Road, West Ham.

BOOTH'S MOTOR EXCHANGE

FOR FAIR DEALINGS.

5½ H.P. REX DE LUXE SHOP SOILED.

FITMENTS.—Roc Clutch. Magneto. Black Finish. Twin Tyres. Spring Seat. Gold line. £35, or exchange. £17 10s. saved.

A 6 H.P. TWIN REX for £6

and a decent 3½ h.p. machine. Big allowances for other machines.

A 3½ H.P. LOW REX for £5

and a lesser-powered machine.

50 REXES IN STOCK, including

5½ h.p.	REX DE LUXE, magneto, twin tyres, black finish	£30 0
5½ h.p.	DE LUXE, single tyres	27 10
6 h.p.	TWIN REX, cantilever	22 0
6 h.p.	TWIN REX, non-skid	22 0
3½ h.p.	REX, 1907, shop-soiled	19 19
3½ h.p.	REX, magneto, speed pulley	18 18
3½ h.p.	REX, 1907, grand condition	16 16
3½ h.p.	REX, spring forks, 26" wheels	12 12
6 h.p.	TWIN REX, black finish	23 0
3½ h.p.	REX, 50-guinea model	10 10

All guaranteed. Special terms for cash.

CASH, CREDIT, OR EXCHANGE.

6 h.p.	TWIN ANTOINE, like new	£22 10
6 h.p.	TWIN ANTOINE sets, new	19 19
5 h.p.	TWIN KERRY, smart machine	22 10
5 h.p.	TWIN G.B., magneto, spring forks	25 10
TWIN	CLEMENT-GARRARD, spring forks, two speeds, 2¼" Palmers	18 18
4 h.p.	STEVENS, torpedo tank	16 16
3½ h.p.	N.S.U., magneto, 2¼" tyres	22 10
3½ h.p.	MINERVA (1907), shop-soiled spring forks, 2¼" tyres, stand	25 10
3½ h.p.	MINERVA, very smart	16 16
3½ h.p.	CHATER-LEA, vertical engine	13 13
3½ h.p.	ROVER, free engine, spring forks	13 13
3½ h.p.	QUADRANT (1907), shop-soiled	25 10
3½ h.p.	QUADRANT, brand new (1908), offers.	
2¾ h.p.	KERRY, tyres like new	11 10
2½ h.p.	KERRY, low and smart	10 10
3 h.p.	HUMBER, free engine	11 10
3 h.p.	ARIEL, 26" wheels, M.O.V.	11 10
2¾ h.p.	ARIEL-MINERVA, low	11 10
3 h.p.	WERNER, fitted Shaw engine	12 12
3½ h.p.	WHITELEY, spray, good tyres	8 15
3 h.p.	CLYDE, M.O.V., magneto	11 10

LIGHTWEIGHTS. SPECIAL OFFERS.

2½ h.p.	SPARK, vertical engine, magneto	£10 10
2½ h.p.	JAP, good tyres, reliable	8 15
3 h.p.	CALVERT, vertical engine, low	8 15
2¼ h.p.	DE DION, vertical engine	8 15
2½ h.p.	SAROLEA, vertical, spring forks	9 15
2½ h.p.	DE DION, vertical, less tank	6 15
2½ h.p.	CENTAUR, enamel like new	8 15
2½ h.p.	MINERVA, vertical, low	9 10
2½ h.p.	MINERVA, grand condition	8 15
2½ h.p.	REX, vertical, spray	8 15
1¾ h.p.	MINERVA, good condition	6 15
1¾ h.p.	QUADRANT, very reliable	6 15
1½ h.p.	MINERVA, very fast	5 15

Push cycles part payment.

TRICARS.

10 h.p.	TWIN REXETTE, open sprung frame, two speeds, special finish	£45 10
5 h.p.	HUMBER, open frame, two speeds, wheel steering, smart	35 0
4½ h.p.	HUMBER, Phelon & Moore, two-speed gear, wheel steering	22 10
4 h.p.	TRENT, open frame, wheel steering, two speeds	22 10
5½ h.p.	REX Tricar, two speeds, open frame, wheel steering, seats three	35 0
6 h.p.	REX Tricar, magneto, twin cylinders, four-speed pulley	32 10
4 h.p.	ANTOINE, M.O.V., smart	18 18

SIDECARS.

MILLS-FULFORD, castor wheel	£3 0
MILLS-FULFORD, rigid type	5 0
Attachment for converting bicycle to tricycle, tyres like new	3 15
ARIEL Coupler	1 15

MOTOR TRICYCLES.

2¾ h.p.	HUMBER, tyres worth the money	£6 10

ENGINES.

New 6 h.p.	TWIN ANTOINE, complete	£8 5
4 h.p.	ANTOINE, M.O.V., complete	6 5
New 5 h.p.	Tricar engine, M.O.V.	8 5
6 h.p.	AVON, W.C., M.O.V., up-to-date	8 5
4 h.p.	ROC, M.O.V., magneto, nearly new	9 5
3½ h.p.	BUCHET, good order	3 15
2¾ h.p.	NOBLE, M.O.V., vertical	3 0
2 h.p.	MINERVA, M.O.V.	3 0
2 h.p.	MINERVA, inclined	2 0
2 h.p.	MADISON, good order	1 15
1¾ h.p.	QUADRANT motor set	2 15
2½ h.p.	BUCHET, nearly new, light	3 10

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MOTOR BICYCLES FOR SALE.

GOOD Opportunity to secure 2½ h.p. F.N., perfect running order; appointment.—Marshall, 4, Duckett Road, Harringay, N.

£7 10s.—3½ h.p. Rex, splendid running order, Watawata belt, two accumulators, Clinchers.—78, Styne Road, Horne Lane, Acton.

3 h.p. Humber, splendid condition, new tyres, spares, lamp, etc.; bargain, £11.—Childs, 90, Woodlands Park Road, Harringay, N.

AS New, 1¾-2 h.p. Wearwell Lightweight motor cycle; take good push cycle and cash.—D. Jackson, Post Office, Larkhall Lane, S.W.

2 h.p. M.V. Eadie-Minerva, new frame, tank, engine, and tyres, one season; £7 10s.; resell easily; photo, stamp.—240, Oakley Road, Redditch.

ONLY Wants Seeing.—3½ to 4 h.p. spring frame Bat and sidecar, rigid type, in excellent condition.—137, St. Giles Road, Derby. £24.

TRIUMPH, 1907, magneto, perfect, and practically new, spares, acetylene lamp, etc.; £36, lowest; will guarantee it.—Wildman, Berkswell, Coventry.

MINERVA, 2-3 h.p., vertical, low, 26in. wheels, good tyres, long bars, smart, excellent going order; £13.—52, Fullerton Road, Wandsworth.

3 h.p. Brown, Palmers, low, new belt, climb anything; ride 50 miles to purchaser; £11. — Millard, Belvedere. Wanted, sidecar body.

1907 Triumph, 3½ h.p., magneto, bought August, condition like new, lamp, horn, spares, tools; £33.—Harborne, Cambridge Road, Wanstead, N.E.

5 h.p. Kerry, powerful engine, four speeds, free engine; cheap for cash, in good condition. — Gould, High Street, Steyning, Sussex.

F.N., 2¾ h.p., almost new, magneto, spring forks, 26 by 2¼ butted tubes, new belt, spares; bargain, £18.—8, Priory Place, Well Street, Hackney.

4 h.p. Roc, with two-speed gear, latest pattern, quite new, only ridden 100 miles, magneto ignition; £31 10s.—Eagles and Co., High Street, Acton.

HUDDERSFIELD Agents for Triumph, N.S.U., Brown, Roc, Phelon and Moore, and Vindec; machines in stock.—Moldgreen Engineering Works.

3½ h.p. Minerva, magneto, and spring forks, footboards, Palmer cord back, and new front tyres; lowest £20.—Horner, 28, Burley Road, Leeds.

2½ h.p. Lightweight, Palmer 26 by 2 tyres; £8 10s.; exchange.—Horner, 28, Burley Road, Leeds.

3⅜ h.p. Rex, in splendid condition, tyre quite good, engine in good running order; 11 guineas, or offers.—Walden, The Laurels, Carshalton Grove, Sutton.

5 h.p. Twin Peugeot, with sidecar, free engine clutch, lamp, spares, splendid hill-climber; best offer over £20.—29, Clarendon Road, Seacombe, Cheshire.

MINERVA, 2¾ h.p., perfect condition, plating and enamel like new, spring forks, new back cover, all spares; £20.—G. Bentley, Sandy Lane, Royton.

NOT Racer, but very reliable 2¾ h.p. Minerva, Eadie fittings throughout, Palmers, Watawata; cost £52, offers.—Davis, 133, Lionel Street, Birmingham.

3 h.p. Rover, 26 by 2¼ non-skid, Whittle, Longuemare, complete, good running order, thoroughly reliable, suit beginner; £13 10s.—29, Prince Street, Bristol.

MINERVA, 2 h.p., light machine, in good condition; trial allowed; £8, or would exchange for rigid sidecar and £4.—Letters, 60, Brouncker Road, Acton, W.

BAT, 2¾ h.p. De Dion, spring frame, 40 miles hour, absolutely perfect; ride reasonable distance to customer; bargain, £16 10s.—Enderby, Spilsby Road, Boston.

3½-4½ h.p. Twin Peugeot, No. 6 Chater-Lea frame, very low and light, as new; £23, or exchange for Roc or Triumph. — 21, Highbury Quadrant, Highbury, N.

MOTOR BICYCLES FOR SALE.

3½ h.p. Rex, late 1906, spring forks, 26 by 2½, all accessories, and spares, perfect throughout; trial; cash urgently wanted; £13.—Jones, 57, Edgware Road, London, W.

3½ h.p. Ariel, low, M.O.V., 26in. by 2½in. Palmer cords, back tyre and tube new, Watawata, cut-out, new accumulator; £16, near offer.—200, Church Road, Willesden.

1¾ h.p. Clement-Garrard, B.S.A. fittings, 2in. Palmers, two-speed gear, good running order; take lady's push cycle part exchange, sell £10 or offer.—Sparks, Guildford.

3¾ h.p. N.S.U. (1907), magneto ignition, 26 by 2½ Peter-Union tyres, with Bates band, 1in. belt, new condition; £29; approval. — Eagles and Co., High Street, Acton.

£17 10s.—5 h.p. twin-cylinder Kerry, green and gold, long, low, and fast, absolutely perfect, and as good as new, faultless, spares, tools.—L. Fearn, Alfreton, Derbyshire.

3½ h.p. Genuine Minerva, 1907, brand new, magneto, spring forks, Continental tyres, lamp, stand, etc., complete; £28, bargain.—26, Landseer Road, Holloway, London, N.

3½ h.p. Rex, B. and B. carburetter, trembler coil, in splendid running order; or exchange for new or second-hand bicycles. — Preece, Arrow House, Kington, Herefordshire.

QUADRANT, 3½ h.p., 1907, magneto, spring forks, perfect condition, fast and powerful, all spares and accessories; £30; seen any time.—W., 18, Torrington Park, North Finchley.

NORTON-PEUGEOT Twin, spring forks, cantilever, very fast, makers recently overhauled, perfect condition; bargain, £18 10s.—Sclater, 370, Slade Road, Erdington, Birmingham.

2 h.p. Minerva, re-bored, re-bushed, new piston, rings, B.B., 26in. wheels, many new parts, good condition throughout, lightweight; £10.—Full particulars, Clarkson, Savile Street, Wakefield.

6 h.p. White N.S.U. Twin, special engine, very low, fast, easy starter, spare tyre, tubes, valves, magneto parts, exhibition hill-climb given; price £35. — H., 11, Apsley Terrace, Acton, W.

3½ h.p. Triumph, magneto, Palmer tyres, running better than when new, late 1907, hardly used; take 30 guineas; faultless. — Clarke, 8, Upper Tooting Park Mansions, Balham.

5 h.p. Twin Rex, spring forks, cantilever seat, accumulator ignition, 2¼ Clincher, A Won (uncut), in splendid running order, guaranteed; bargain, 16 guineas.—186, South Lambeth Road, London.

TWIN Rex, winner Buxton hill-climb, Fuller Syntonic coil, brand new Dermatine belt, spare Whittle, double thumbslide control, electric horn, stand, spares.—C. Lloyd, Shirburn, Ramsgate.

5 h.p. Twin Rex, nearly new; £22, or exchange.—Below. Fairy, 3 h.p., twin, weight 75 lbs., nearly new; £16.—Below. F.N., new engine, low built, excellent condition; £14. — Morris, photographer, Bourne.

6 h.p. Twin Jap-Ariel, with Liberty sidecar, tyres all perfect, two non-skids, in perfect condition, and absolutely ready for road; cost £65, sacrifice £35.—Wood, 33, Cornhill, London. Telephone, 7646, Wall.

3½ h.p. Swift, White and Poppe, good condition throughout, with Montgomery's sidecar, compensating joints, 28in. wheel; £24 cash, or will divide. — Full particulars of Roland Rutter, Bury St. Edmunds.

PHELON-MOORE, 3½ h.p., two-speed gear, spring forks, and flexible sidecar, tyres interchangeable, guaranteed perfect order; lowest £43; run eight months only. — Kay, 30, Carter Knowle Road, Sheffield.

3½ h.p. Humber, very little used, quite equal to new, chain drive, free clutch, new Dunlops, all accessories, guaranteed; £14, or exchange higher power with cash.—Hallam, Baths, George Street, Buxton.

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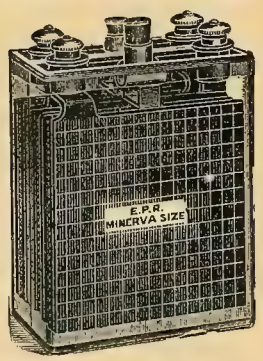

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RILEY, 4 h.p. (86 by 89), 18½in. frame, 26 by 2½ Clinchers, two-speed gear, powerful brakes, and Montgomery art cane sidecar (compensating), all new; £45, or would sell separately. — James, High Street, Daventry.

3¼ h.p. Wolf Motor Cycle, Longuemare carburetter, two accumulators, Watawata belt, Clincher tyres, Price's stand, long and low, lamp, tools, spares, perfect order; £20.—Wright, 75, Great Howard Street, Liverpool.

3¼ h.p. Rex, 26 by 2, foot brake, variable gear pulley, Whittle belt, Bowden's handle-bar control, Brooks saddle, tools, spares, stand, splendid going order; £12 10s., or good bike part exchange.—17, Baxter Avenue, Doncaster.

6 h.p. Twin Traveller Cycle, Chater-Lea frame, copper tank, Palmers, two belts, two pulleys, two accumulators, twin carburetter, spare valves, in excellent condition, and very reliable; £20.—G. Blakemore, Corporation Street, Walsall.

1907 Magneto Triumph, 3½ h.p., good condition, Riche's tubes, N.A.B. spring seat-pillar, Lucas lamp, large horn and tools, spare cover and belt (Watawata), new Goodrich non-skid tyre on rear wheel; £30 cash.—24, St. Malo Road, Wigan.

FOR Sale, 3 h.p. Bradbury motor cycle, with M. and F. sidecar, free engine clutch, accumulators, lamp, horn, sundries, complete, in good going order; together £16, or would separate.—Garage, opposite South Ealing Station, District Railway.

3½ h.p. Humber, chain drive, free engine, handle starting, Dunlops, splendid condition, easy to start, and reliable, little used; seen any time by appointment; all accessories; lowest £16. —Joiner, 14, Cedar Road, Cricklewood, N.W.

CHEAP, but good.—Triumph, 1906, 3 h.p., spring forks, two accumulators, many spares, Davidson's petrol gauge, horn, valve, etc., in perfect order, and splendid appearance; seen any time; sacrifice 20 guineas.—Jones, 119, South Lambeth Road, London.

3½ h.p. Quadrant, 1906 pattern, but very little used, and as new; enamel and plating perfect, spring forks, tyres unscratched, very fast, and splendid hill-climber, with all spares, stand, etc.; price £25, no offers.—G.G., 34, Cambridge Place, Paddington, W.

3¼ h.p. Latest Brand New Clarendon, unridden, guaranteed perfect, ball bearings to pulley side of engine, low frame, long bars, 26in. wheels; offers invited; sent on approval; exceptional fine machine; cost £38.—Sheldon House, Queen Victoria Road, Coventry.

BARGAIN for the Holidays.—Must sell. Bat cycle, perfect condition, little used; inspection invited; with trailer, extra tyre band, and accessories, £22 10s., or near offer; trailer separate £3, bike separate £20.—Apply, 151, Clive Road, Dulwich, after 7, or by letter.

LIGHT Vindec, spring forks, Truffault, magneto, Roc two-speed gear and clutch, adjustable pulley, fan, magneto cover, studded P.U. back, Rich's tubes and spare, spare new cover and valves, stand, magneto parts, etc.—Lieut. Davis, H.M.S. Excellent, Portsmouth.

N.S.U., 1907, 3 h.p., ridden about 1,500 miles, spring forks, two-speed gear, spare pulley, Peter-Union tyres, splendid lamp, horn, stand, perfect condition; £27 10s., cost £48; would be cheap without the two-speed gear; no offers.—Munton, Oak House, Winsford, Cheshire.

EDINBURGH.—Alexander's Motor Exchange, largest stock of new and second-hand motor cycles in Scotland. Repairs to any make by skilled and practical workmen. Accessories of every description; two-speed gears fitted.—108 and 110, Lothian Road, Edinburgh.

5½ h.p. 1907 Standard Twin Rex, adjustable pulley, de luxe footrests, rubber non-skidding treads fitted to tyres (uncut), all accessories and every refinement, guaranteed perfect, ride 100 miles to intending purchaser; sacrifice £23 10s. —105, Milnrow Road, Rochdale.

TRICARS FOR SALE.

£15.—5-6 h.p. twin tricar, in first-class order.—Jones, ironmonger, Lichfield.

£25.—Water-cooled tricar, 4½ h.p., Stevens engine, two speeds, chain drive, coach-built front seat, Palmer tyres. — Jones, ironmonger, Lichfield.

HUMBER Tricar, water-cooled, 4-5 h.p., splendid condition, fast and reliable, all accessories; £25; appointment; any evening.—S., 36, Bellevue Road, New Southgate.

4½ h.p. Aster Engine Tricar, Chater-Lea frame, Bozier two-speed, water-cooled head, chain drive, wicker body; quick sale, £25.—3, Glendower Place, South Kensington.

5½ h.p. Light Tricar, twin-cylinder, two speeds, Palmer tyres, 2½ cord on back, magneto, extra mudguards, pump, tools, horn; £29.—Clark, George Street, Ryde, Isle of Wight.

LAGONDA Tricar, 10-12 h.p., water-cooled engine, three speeds, very fast on hills, excellent condition, all accessories; any trial; price £65.—The Western Motor Agency, Sidcup, S.E.

5 h.p. Tricar, water-cooled, single speed, chain drive, clutch, good tyres, studded back, bucket seats, just overhauled and re-painted, a good climber; £25.—47, Station Road, Redhill.

CAPITAL Light Tricar, 3½ h.p., M.O.V., belt drive, Ideal fan, Longuemare, Mabon free engine clutch, handle starting, footboards, excellent condition; bargain.—32, Oakhill Road, Putney.

STOCKPORT.—9 h.p. Riley, just overhauled by Riley people, 3in. Dunlops front, 3½in. Shaw non-skid back, very powerful; £65, or near offer.—Lund and Davies, Heaton Lane, Stockport.

POWERFUL 4½ h.p. Tricar, air-cooled Stevens engine, Whittle belt, 2½in. tyres, long footboards, condition equal to new; write particulars; first reasonable offer gets it.—22, Carfax, Horsham.

REXETTE, 6 h.p., good condition, just overhauled, tyres good, non-skid back wheel, very little used, good hill-climber, fast and reliable; £35, or near offer.—F. Oakstone, Evington, near Leicester.

5-6 h.p. Open Frame Tricar, Chater-Lea, two-speed, rubber footboards, new cover and tubes; £30, or offer; exchange Mabley car or two-cylinder Daimler, suitable for station work; cash adjustment. —Apply, Ship, Upstreet.

INVICTA, 6-8 h.p. Stevens two-cylinder water-cooled engine, Chater-Lea frame and gearbox, three speeds and reverse, wheel steering, coach-built body, perfect running order, fast and reliable; £47 10s.—Chilwell, 82, Wellow Crest, Harrow.

QUADRANT Tricar, 6½ h.p., 1907 model, perfect condition; cost £95 cash, without extras; scarcely ever used, owing to illness; reasonable offer entertained. — Particulars, photo, and appointment for trial, write, Ashmere, Queen's Road, Hazel Grove, Stockport.

1907 9 h.p. Riley Tricar, ridden about 1,800 miles, finished Riley red, 700 by 80 grooved Dunlop on front wheels, 710 by 90 steel studded non-skid on back wheel, long toolbox at side, painted to match tricar, lamps, horn, tools, etc.; £70.—9,611, *The Motor Cycle* Offices, Coventry.

STAMFORD HILL.—5 h.p. w.c. Oppermann three-speed tricar, overhauled, plated, and enamelled like new, £35; 4½ h.p. two-speed Phœnix Trimo, overhauled, plated, and enamelled like new, £32 10s.; 4½ h.p. Kelecom, £22; 3½ h.p. M.M.C., £10; 3½ h.p. Rex, Millford front, £15; all bargains and guaranteed; trials.—128, High Road, Tottenham.

1907 9 h.p. Riley Tricar, standard red finish, pressure fed drip lubricator, 700 by 80 Dunlop grooved back tyre, 700 by 80 Dunlop front tyres, horn, with flexible tubing, luggage carrier at side, spare 700 by 80 steel studded cover and tube for back wheel in canvas bag, pump, front oil lamps, electric tail lamp, with spare accumulator, full set tools, etc., in good condition, having just been overhauled; £60.—9,610, *The Motor Cycle* Offices, Coventry.

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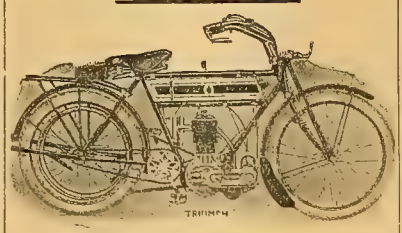

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Magneto Covers.—The Service specially made for Triumph machines. **Price 2/3.** Post 1d.

Repair Outfits.—Our Patchquick Outfits cannot be equalled. No need to vulcanise. The hotter the tube the more it sticks. 3/- size **2/8**; tricar and small car size, **5/6.**

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Fitted with detachable mirror lens and dissected front glass to diffuse the rays. **Price**, complete with generator, nickel-plated or brass, **26/6**; or Headlight only, **18/9.**

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3⅜ h.p. Rex Tricar, little used, spares; £16 10s.—Whitehall, clothiers, Green Street, Upton Park.

3½ h.p. Singer C.D. Tricar, tyres almost new; bargain, £15. — Reid, 268, Albert Road, Pollokshields.

HUDDERSFIELD Agents for Phœnix and Riley tricars and cars, Moldgreen Engineering Works.

RILEY, 5 h.p., 1907, wheel steering, water-cooled, perfect condition. — Grasslands, Balcombe, Sussex.

TRICAR, 3½ h.p. engine, two-speed, good running order; £13 15s. — H., 8, Herndon Road, Wandsworth.

6 h.p. Twin-cylinder Rex Tricar, fast, smart, good order; £20, bargain; must clear. — 13, Brookwood Avenue, Barnes.

HUMBER Tricar, water-cooled, two speeds, footboards, good condition; £35. — John Robinson, Warwick Road, Carlisle.

HUMBER Tricar, 4 h.p., two-speed gear, chain drive, new studded cover, bucket seat, spares; £30.—Brown, motorist, Thetford.

HUMBER Tricar, free engine, clutch, nearly new Dunlops, car tyre back; £12 10s., or nearest offer.—Toon, 4, Linden Grove, Nunhead.

4 h.p. Kelecom Fan-cooled Tricar, Chater-Lea clutch, magneto, two-speed, Palmer cords, new; £25.—77, Upton Lane, Forest Gate.

GLASGOW.—Tricar, Minerva (3½-4½ h.p.), coach-built front, two-speed gear, fan, tools, and spares, first-class order; £20.—Steel, 513, Victoria Road.

RILEY, 6 h.p., three speeds and reverse, perfect running order, and freshly painted; trial given; £55.—Lyell, Redcott, Dacres Road, Sydenham, London.

TRICAR, excellent condition, coach-built, Chater, non-skids, Watawata, 7-9 h.p. Peugeot; exceptional offer, 25 guineas.—Phillips, 384, York Road, Wandsworth.

4¼ h.p. Phœnix Tricar, in perfect condition, good climber, two speeds, free engine, starting handle, tyres equal to new; £35.—Stringer, chemist, Kingston-on-Thames.

SINGER Tricar, 3½ h.p., magneto, two speeds, clutch, footboards, fan-cooled, fast, and reliable, new condition; trial.—Hall, 1, Colville Square Terrace, Talbot Road, W.

TRIUMPH Tricar, fitted with 6 h.p. Antoine engine, Longuemare carburetter, fan-cooled, spare cover and tubes, splendid hill-climber; £30. — White, 178, London Road, Croydon.

4½ h.p. Humber Tricar, latest pattern, two-speed, free engine, water-cooled, car tyre back, front tyres new, first-class condition; 30 guineas.—Oakden, Cheapside, Lancaster.

6 h.p. Singer, three speeds, reverse, heavy Dunlops, Castle coils, Bowden control, lamps, spares, smart appearance, splendid condition; £60, cost £140; any examination.—101, Earlham Grove, Forest Gate.

10-12 h.p. Lagonda Tricar, water-cooled, three speeds, excellent condition, spare tyre, chains, valves, acetylene lamps, very fast, winner of two hill-climbs; bargain immediate purchaser.—Dr. Warren Davis, 1, Dorset Square, London.

MOTOR Cycle-Tricar for sale, Humber, 3 h.p., free engine, perfect running order and condition, lately re-enamelled and plated, tyres good as new, complete with lamps, horn, waterproof apron, tools, spares, etc.; price £16; seen Croydon by appointment.—Address, X.Y., c/o J. W. Vickers and Co., 5, Nicholas Lane, E.C.

TRIETTE, Rex, 6 h.p., twin-cylinder, condition as new, very fast, upholstered red leather, buttoned; the following were new month ago—Whittle belt, two covers, three Daimler electric lamps, with 60 amp. accumulator, Lucas Acetyphote, Osborne 1908 four-speed gear, brass horn, tool boxes, enamelled aluminium, and green lined; £32.—Harrison, Vesey Street, Birmingham.

TRICARS FOR SALE.

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CENTURY Tricar, 6½ h.p. w.c. Aster engine, improved two-speed gear, open frame, wheel steering, Bowden control, perfect condition; £45.—Thompson, 57, Victoria Street, Blackburn.

TRICAR, Chater-Lea, cane carriage, Dunlops, new 4 h.p. Antoine engine, two speeds, Longuemare, oil, tools; £15; push bike part exchange.—Pork Butcher, 74, Farwig Lane, Bromley, Kent.

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QUADRANT Tricar, 5 h.p., two cylinders, two speeds, handle starting, climb anything; trial; photo; stamp reply; £27 10s.; also Decauville 8 h.p. two-seated car, £15.—23, Thornford Road, Lewisham.

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REX Triette, the light tricar, 5½ h.p., twin-cylinder, as new, perfect order throughout, fully equipped with spare valves, accumulators, belts, tools, etc.; photo; trial; £27.—Lloyd, Victoria Terrace, Leamington.

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MONTGOMERY Sidecar, almost new, 26in. wheel; £6.—5, Heath Street, Hampstead.

SIDECAR, cane body, fair condition; £3 5s.—M'Michael and Binnie, Shillinghill, Alloa.

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SIDECAR, rigid, left side, 26 by 2½, upholstered green, nearly new; £4 10s. quick sale.—No. 9,597, *The Motor Cycle* Offices, Coventry.

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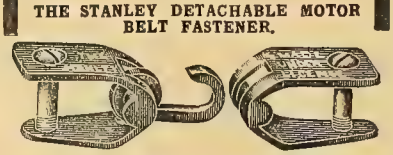

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ARIEL Motor Trike, 2¾ h.p., De Dion engine, as new; £11 10s.—Wright, 3, Fieldway House, Highbury, N.

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GENUINE 2¾ h.p. De Dion Tricycle, new 2¾ covers and tubes, compression gears, perfect, tools and spare parts, as in use now, with portable shed; £20.—Manager, 295, Goldhawk Road, London.

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FOR Sale, Two-seated Car, 6 h.p. Aster; £30, will take motor cycle in part payment.—6, Swan Bank, Bilston.

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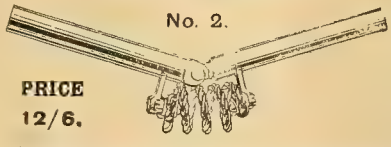

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WANTED, second-hand motor cycles, for cash, or in part exchange for new Moto-Reve light twin.—Colville Motor Works, Chiswick, W.

TWIN Peugeot or Jap, M.O.V., magneto, and cash, for latest magneto Tri- umph, spares, or sell £45.—9,596, *The Motor Cycle* Offices, Coventry.

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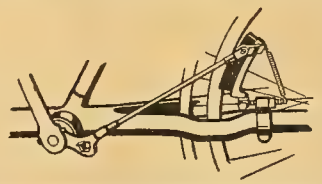

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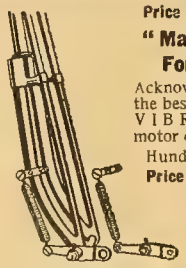

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WHIPCORD Cycling Breeches, la cut; 10s. 6d.; write for patte —Booth, tailor, Longton, Staffs.

TWIN Engine, Antoine, 5 h.p., silenc coils, nearly new; £6 15s., lowe 18, Wellington Road, Smethwick.

ENGINES, air or water-cooled, 3, 6, 9 h.p.; write for particulars.— vance Motors, Ltd., Northampton.

MAYFAIR Accumulators, guarante 15 a.h., 10s. 6d.; 20 a.h., 15s.; 40 a 25s.—Fellows, Hertford Street, Mayfai

CHEAP Motor Cycle Houses; catalo sent free.—Portable Building C pany, Felsham Road, Putney, Lond

BROOKS Steel-studded non-skid cov 26 by 1½in., also Grose ditto, pra cally new; what offers?—Moss, Wen

YOUR New Mount is incomplete w out the Advance adjustable pull £1.—Advance Motor Mfg. Co., Ltd., No ampton.

DUST Screens, for tricars and side (registered); write for illustrati —Sole makers, Taylors', Motor Wo Edmonton.

EVERYTHING Made in cycle ta except a fortune. Write for pri —A. Phillips, 2, Strathnairn Street, mondsey.

IDEAL Motor Cyclists' Leggings for st comfort, and wear; finest sm hide; 6s. 6d. and 8s. 6d. pair.—Dar Boro, Farnham.

BRAND New 76 by 76 engine, carbu ter, tanks, and complete set o tings for 46 guinea machine; £6 15s.- High Road, Tottenham.

2¼ h.p. Engine, £4; 2¾ h.p. ditto, 3½ Bowden tricar hub, 26 by 2¼ cher, 15s.; twin car coil, 10s.—Horner Burley Road, Leeds.

MINERVA, twin-cylinder, 4½ h.p. gine, in perfect condition, £8 Phœnix two-speed gear, chain drive 10s.—Sloan, Boyle, Ireland.

THE MOTOR CYCLE

Vol. 6. No. 264. CONTENTS. April 15, 1908.

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The Affiliation Question.

FOR some time we have recommended the Auto Cycle Union to accept portions of clubs, instead of insisting upon the whole of the club becoming affiliated. We advocated this policy because we had in mind the question of mixed ...s, and knowing the motor cycle members in the ...ority of cases were desirous of being affiliated to A.C.U., irrespective of the wishes of the car ...bers. We are now pleased to say that the A.C.U. given us permission to state that mixed clubs ...ring to do so may sign separate affiliation agree...ts affiliating their motor cycle members only to the ...U. and their car members to the R.A.C.

The M.C.C. Inter-club Team Trial.

THE above event, which is down for decision on June 27th, we hope will receive more support from London and provincial clubs than was the case last year. A total of six motor cycle clubs out of approximately 100 in Great Britain and ...and is not a very large muster to compete for a fifty ...ea challenge cup. It should be borne in mind that ... event is of a most sporting nature; it does not ...end upon any one individual, but on a team ...ix riders representing each competing club. It is ...l at a week-end in a centrally situated spot, so that ...y club team can compete with a minimum of trouble ... inconvenience. Provincial clubs have frequently ...plained that all open competitions are confined to ... London district, so that the team competition of ... Motor Cycling Club removes this drawback, and ...excuse for a non-entry would not hold good in this case. The M.C.C. recognised that this might be a grievance, and chose a centre in the Midlands dating from the inauguration of the competition. Elsewhere we publish the rules for the 1908 competition, and hon. secretaries of clubs will be able to gather most of the particulars they require from these rules. In addition, Mr. J. Van Hooydonk, the assistant trials hon. secretary of the M.C.C., will be pleased to answer any enquiries or furnish any information. His address is Spring Villa, High Road, North Finchley, N.

Motor Cycle Finish.

A CONTRIBUTOR to *The Motor Cycle* recently said that the average motor cycle is possessed of far too many plated parts. Plated spokes, rims, hubs, cranks, and pipes, not to speak of bolts, nuts, and sundries, is simply a copy of the show bicycle; it looks nice, nothing better, but the cleaning! We wonder what the average car would look like after a few hundred miles on swamped roads if the above parts were nickel plated and left to the tender mercies of a not too energetic driver. The motor cyclist, however vigorous he may be, is not too fond of a two hours' back-bending cleaning operation after a day's ride, but it has to be tackled if the machine is to be even fairly presentable when it is next to be taken out.

If we could have our own way, we would have a machine painted a nice grey all over, with perhaps plated levers and handle-bar. It would not reflect the rays of the sun, but it would be a far more practical finish than the plating *ad lib.* which seems to be the only style which makers consider commercially successful. One or two all grey machines at the Show might

prove attractive. Why not a motor cycle Grey Ghost? We know of more than one make of machine which does not offend the tympanum to a greater extent than a slight flicking of the valves on their seats, when the engine is running "light" on a fairly level road with a good surface.

By the way, the best method for removing caked mud is to apply paraffin liberally with a sash tool (painter brush). When the paraffin has been given time t soak *au fond*, the mud will wipe off the frame an plated parts without scratching the surface, and, wh is more important, without raising a horrible dus which settles on everything in the vicinity, includir the cleaner's respiratory organs.

RIDING HINTS.

Acetylene Gas Lamps.

In purchasing a motor cycle, or, indeed, any kind of acetylene lamp, one should always see that the lamp is in good order by putting it to a practical test without delay, as there may be some defect in the lamp or generator which a mere superficial examination may fail to reveal. On a recent occasion we purchased an acetylene lamp of the separate generator type, which appeared to be quite in order. On subsequently filling up with carbide and turning on the water, gas was generated, but failed to pass along the pipe to the burner. On testing the burner with another generator it was found to be quite clear, and on further examination of the new generator it was found that gas was escaping through the air hole in the filling aperture cap of the water chamber. As this continued while the water valve was tightly closed it was evident that there was a leak from the gas chamber to the water chamber, notwithstanding that the water did not appear to leak.

Attention to the Engine.

An experienced motor cyclist relates for the benefit of readers the attention he bestows on his 3 h.p. Triumph machine:

The valves are ground in twice a year, the crank case swilled out and cylinder removed for scraping away the carbon deposits every 700 or 800 miles, and the magneto oil reservoirs cleaned out at the sar time. The exhaust box is dismantled and cleaned o once a year. Round the heads of the set pins holdi the magneto in position a piece of copper wire wrapped and attached to the side bracket, so that a screw came loose it would not be lost.

In the toolbag is carried a magnetised rod, so that case of any small job being undertaken on the road lays out a cloth with the magnet on it, and throws small parts, such as nuts and split pins, on the clo when they adhere to the magnet and are not lost.

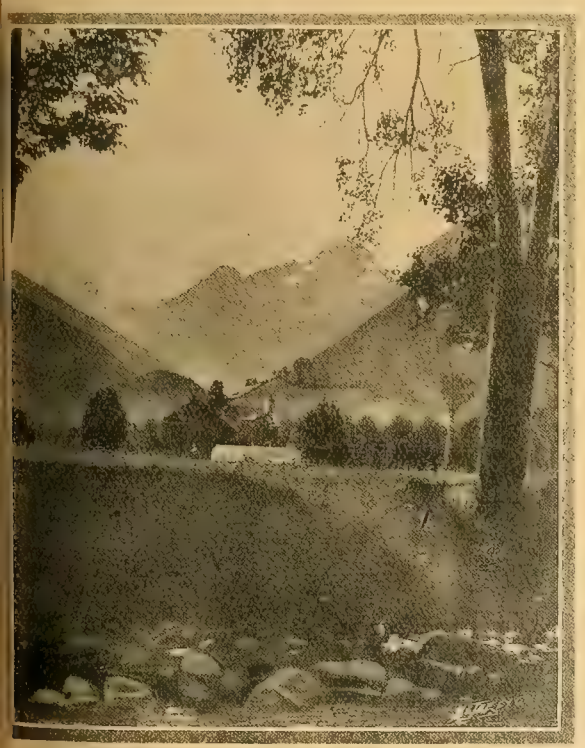
Another article carried (but which must be v seldom, if ever, wanted) is a piece of thick belt leat for making nuts. If a nut is lost, no matter w size, a makeshift can be made out of the leather. hole is made in the leather not quite the size of bolt the nut is to fit, and it will screw on very tigh A drop or two of oil is then put on the leather r which causes the leather to swell, and when it is ti it will last some considerable distance. A method testing for leakage of compression is to place mach where there is no draught. Paint the joints of c and top of cylinder with paraffin, and start the eng If there are any leaks from cylinder fittings, puffs smoke will be seen issuing from every leak at e explosion. Screw the caps down tighter, and if leaks still exist fit new washers which are not so ha

At the 25th anniversary of the German Cycle Club in Berlin on the 14th ult., the principal feature of the occasion was the introduction of the "Motor Cycle Du of the brothers Lüders. These amateur artistes accomplished with success some extraordinarily difficult evolutions on light motor cycles. Illustration No. 1 sh them on one machine, one rider standing on the other's shoulders. No. 2, Riding in a circle side by side both riders seated backward. No. 3, Standing upright on fore and rear axles without making use of the handle-bars. Motosacoche machines were used.

A Few Days in the Pyrenees.

By G. J. C. (Concluded from page 269)

After surmounting the zigzag, I ran a few miles long a winding but almost level road into Arrens. Here the first glimpse of a snow-capped mountain was btained. The enthusiastic photographer might easily pend a day in taking views of fascinating "bits." Returning to lunch at Pierrefitte, the engine was given second gruelling on that day on the road up to Cauterets. The surface was much better than on the orning's run, but the local method of watering the oads led to a rather nasty side-slip, which proved too uch for the footrests. A quarter of an hour was pent in adjusting matters, and then "Excelsior!" but, nlike the famous youth, the speaker lived to tell his wn tale. Cauterets is one of the Pyrenean beauty pots, and lies in a narrow valley surrounded by grand ountains. The town itself is, unfortunately, spoiled y too much attention from travellers. The method lluded to of watering the mountain roads is simplicity self, for it consists of a man with a wooden shovel, ho ladles the water from the gutter, which is also a ream in miniature, on to the highway. It is effective preventing dust, but forms a paste on the surface of ie road, which is very dangerous to rubber-tyred vehicles. Anyone visiting this country should provide himself with a powerful horn, as the local motorists drive in a way that would not be tolerated in England, driving round the sharpest corners without any warning. Indeed, the only safe way on the winding mountain roads is to have the cut-out permanently open. The natives seem to be used to the noise, and take no notice of it. The run back to Pierrefitte in the evening was delightful—the air cool and fresh, and the light on the mountain tops simply glorious. The road was steep enough in most places for the machine to run free, and the clutch could always be slipped in gently, and the engine restarted on approaching a level stretch of road.



Arrens.

A picturesque road near Cauterets.

A Twelve Miles Climb.

Next day I decided to run up to Gavarnie, and, having filled up with water-cooled oil, and given the engine an extra charge or two, began the climb. On this occasion the engine did not appear to be doing its best, and consequently I was obliged to cover ten and a half out of the twelve miles on the first speed. Oil was poured in continuously, and I was thus able to reach the top of the long climb without any signs of

A Few Days in the Pyrenees.—

overheating. The scenery gets wilder and more desolate as one ascends, until finally, the valley broadening somewhat, the village is reached. At the Hotel des Voyageurs, one of the best mountain resting-places I have ever visited, I met some friends who were on a walking tour, and with them I admired the famous Cirque. It is impossible to give an idea of the grandeur of this curious freak of nature. The cascade falling many hundreds of feet looks like an overflow pipe on a house wall, and only when one hears that the Cirque (or Circus) is over a mile across does one begin to realise its size. The writer witnessed the following little incident while walking up the valley. A captain of a certain volunteer corps who was staying at Gavarnie, being desirous of visiting the Cirque, hired him an ass and, as is customary and necessary, a comely but generously proportioned dame to prod the animal at intervals. Progressing thus in state, he was much embarrassed to find the colonel of his regiment and the colonel's wife reposing by the wayside after tramping over from Spain. No natural death will be the lot of the story.

When, after two days' rest, I fetched the motor bicycle out again, the engine absolutely refused to fire; in fact it would not turn round. An investigation showed the exhaust valve to be at fault. Not being able to move the large nut with my King Dick, a messenger was sent for a large wrench. Meantime, it was seen that the valve wa merely glued up owing to too free use of the oil pum and a spoon and a little petrol soon set it free agai but the messenger is still wondering how a nut can b removed with a spoon.

Mountain resting places at Gavarnie.

Bordeaux Cathedral.

For the benefit of those contemplating a tour in th Pyrenees, it may be mentioned that the roads are well graded that a good 3½ h.p. engine with reasonable touring gear and a moderate amount luggage should easily climb all the hills met with, b for comfort and certainty of climbing all gradients tw speeds are incomparably better. I have ridden ma different types of motor cycles, and years ago used put down a large proportion of the fatigue of a lo day's run to the noise of the average machine. Owi to fast driving which is general, and the dang from other road users, the Rip was driven almo always with the cut-out open, but, curiously, this d not affect my somewhat sensitive nerves in any wa and the only possible conclusion is that that wea feeling after a long ride is the result of vibration, whi on a spring-framed machine is entirely absent.

After running down to Luz, I intended crossi the Col de Tourmalet, but a thunderstorm upset m calculations, and as time was running short, a retu was made direct to Pau *viâ* Pierrefitte and Lourd At Pau another thunderstorm drove me to train inste of riding back to Bordeaux, and so ended a ve pleasant few days' trip in a country which wou delight not only the ardent motorist, but also t searcher after new scenery and fresh ideas.

THE END-TO-END TRIAL.

ITS COST AND OTHER HINTS TO COMPETITORS.

By H. G. COVE.

ALTHOUGH I do not consider the End-to-end a very arduous competition, yet I would strongly advise all intending amateur competitors to begin getting fit about a month in advance. By this I mean that about the middle of June the rider should begin to prepare for the contest by taking good long rides on a motor cycle, varied with a little walking or whatever exercise the particular competitor prefers for getting fit, and this should be continued right up to the day of the start. There is nothing so good as to enter upon a long competition feeling thoroughly fit and well, and I know more than one experienced rider who, on the third day of the 1906 End-to-end, said, "Now I am feeling a little bit fit, and ready to tackle the Grampians," whereas in the earlier portion of the run the stiff Cornish and Devonshire hills were almost too much for some of them.

The next important point is the choice of a good machine, and here I would say that, although 7 h.p. twins and 2¾ h.p. singles got through very well in 1906, yet I consider the ideal machine to be a 3½ h.p. single or a 5 h.p. twin, and a man mounted on a machine of any good make and of about these h.p.'s is far better off than another on a lightweight or a huge twin.

I would advise every rider to learn thoroughly the various portions of his machine before attempting the ride, for it is courting disaster to start on a machine that one has only received from the manufacturer, say, a week or so beforehand.

During the competition only one hour per day is allowed for adjustments and general overhauling, and this hour being in the morning from 7 to 8, one has to be quite sure about turning out of bed in good time in order to take full advantage of it. There is little time on the actual run itself for repairs, and it is far better for a man to see that his machine is in perfect trim before starting than to attempt the day's run on a machine he has not thoroughly overhauled, and trust to luck to get through. Repairs and adjustments are not allowed whilst in controls or at the end of the day's run.

Spare Parts.

Spare parts, such as valves, small nuts, and plugs, are very necessary, for, although one may be able to purchase these on the road, it will be found much better to carry them. The competition rules do not prohibit their purchase *en route*, but there is always the possibility of not getting the exact sizes required.

With regard to tyres, I would lay down a hard and fast rule, and say, "Start with perfectly new ones." The roads vary so much, and the worst portions are encountered so far away North, that it is false economy to start with tyres that have had much wear. Spare tubes should be carried, and a good puncture repair outfit.

In some parts the controls are far separated, and there is plenty of time for a man to repair punctures; but there are one or two sections in which, should a man be unfortunate enough to puncture a tyre, there is little chance of his getting into control in time to save loss of marks. I would, therefore, again urge all competitors to see that their outer covers and air tubes are new and provided with a good stout tread.

Now, as to the probable cost, I do not think one can lay down any hard and fast rule, but the journey can be easily accomplished and all expenses paid if one sets aside £1 per day. Hotel bills are fairly reasonable, and as the A.C.U. makes special arrangements with the hotel-keepers, all food and a comfortable bed are provided for 11s. per day; the remaining 9s. is quite sufficient for petrol and other odds and ends.

The Journey Home.

The cost of getting to Land's End and returning home from John-o'-Groat's is a matter that can be settled by consulting the railway company at the town from which the competitor starts. If it is decided to travel by road, £1 per day is ample, and the journey could possibly be accomplished for much less. Last time very few returned by road, as they desired in most cases to return to their various pursuits too soon to allow them to undertake the long journey by road.

A Few Suggestions.

There are a few suggestions I should like to make, and they are as follows:

1. Every competitor should rise early, have a good breakfast, and be ready at the door of the motor house at 7 a.m., for he will find that he will require every minute of the hour allowed in which to overhaul and clean his machine.

2. Do not rush blindly from control to control, but take the journey at a good steady pace, with always a bit in hand, to allow for punctures and adjustments. The old maxim that it is not the miles we travel but the pace that kills is very applicable to motor cycling, *for many of the engine troubles can be traced to over-driving.*

3. The 1906 regulations did not penalise a competitor who arrived outside a control before time, but I believe that this year the A.C.U. will not treat competitors lightly who, by greatly exceeding the legal limit, wait outside the control, a long way in advance of schedule time.

4. There are hills on the route that should give the ordinary competitor much trouble, but there are many, on the first day of the run especially, which come upon the rider quite suddenly, and, should he not be prepared for them, it is possible that overheating may result. It is well, therefore, on the first day's run to take things rather quietly. On the second day splendid roads are encountered, with only one or two stiff hills. On the third day, the route is trying from Warrington to Preston, it being cobbles and tramlines nearly the whole of the way.

On the fourth day there is nothing much of importance, except that, at the end of it, one arrives at the most delightful town there is in Scotland—Pitlochry—where the hotel accommodation is of the best and the scenery grand.

On the fifth day the Grampians are encountered, and here one may expect twenty odd miles of really rough going. The road was in a terrible state last time, the smallest stones being as large as one's fist, and, although a strong wind was not experienced, yet it is as well to be prepared for one.

The sixth and last day brings us to the hills over the Ord of Caithness, ending up with Berriedale. In 1905 competitors were warned in the morning of a compulsory stop before this hill, as it is dangerous to ride down and "more dangerous to ride up." Very few men got round the hairpin corner; in fact, it entails almost an acrobatic performance to do so, but it is worth trying, if only for the fun of the thing.

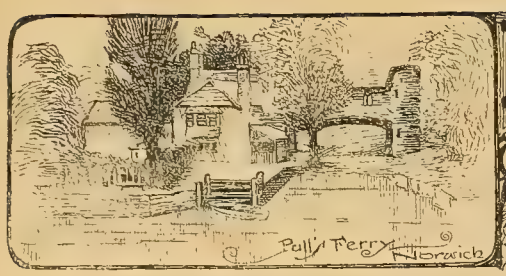
At Berriedale we were told that all was plain sailing into Wick, but I would warn riders of one nasty hill—I think at Dunbeath, about seven miles further on—which was nearly the undoing of one competitor the year before last. It is a steep down grade, with a sharp left-hand turning, and if one misses the turn a collision with a stone wall is unavoidable.

I presume that, as before, we shall arrive at Wick in good time for lunch, in which case competitors will have plenty of time to get to John-o'-Groat's. But a word of warning here is needed. Two, if not three, competitors left Wick with plenty of marks in hand to obtain a gold medal, but, by being wrongly directed, they went to Thurso instead of Groat's. One ran out of petrol on the way, and, losing many valuable marks, only received a silver medal. It will, therefore, be clear to all that constant care is needed at every part of the course, at the start and at the finish.

Send your Entry in Early.

In conclusion, I would ask all those who intend to take part to enter immediately the forms are issued, as by this means the work of the committee and the secretary is much lightened. If the officials know well in advance how many intend to participate, they can make the necessary arrangements for their comfort.

Another word and I have finished. Arrive at Penzance in good time, and report yourself immediately to the officials. Place your machine wherever requested by the judges, and when finally passed and you receive instructions obey them to the letter. By this means you will be assisting the officials, whose sole idea is to do all in their power for the A.C.U. and the competitors.



Occasional Comments.

By Ixion.

Lightweights on Grease.

There is no doubt that if one's district is not too hilly, the lightweight is a jolly little mount for winter riding. Instead of slithering alongside nervously waiting for a patch of dry ground to give one a chance to hop into the saddle, you can push off from the kerb edge seated on the saddle, and commence pedalling. You can slow the machine down to a crawl over the worst patches of grease without making the engine jerk at the back wheel and skid it, and if you have to wait behind a cart for a minute or two you can pedal the machine without getting hot and moist all over. I think the introduction of efficient lightweights will lead to a great deal more winter riding than has been done hitherto.

Some Magneto Improvements.

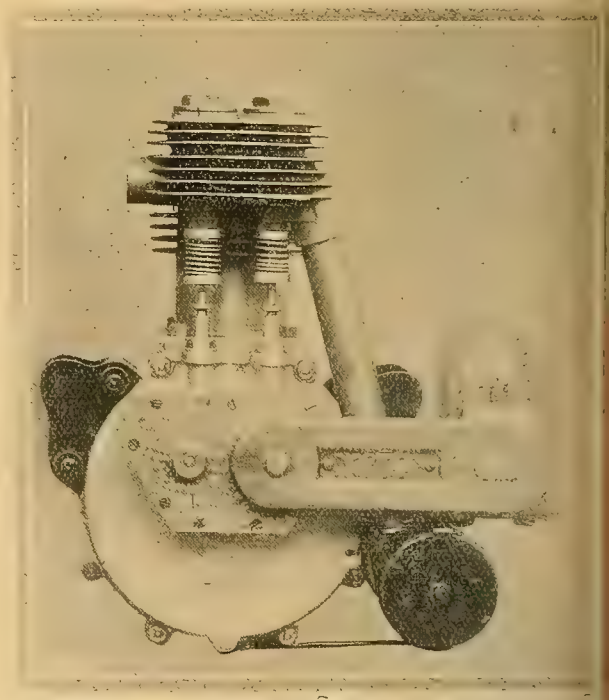
Quite a little host of new magnetos for motor cycle engines are coming upon the market, and in examining them I have encountered the following innovations, which may interest readers: Double contact breaker spring, serving two purposes—(1) keeping platina from breaking contact too far and (2) stiffening main spring actuating bell crank arm, and so obviating poor running, due to loss of temper in this spring; contact breaker detachable by pushing in a pair of spring pushes, without the use of any tools; the use of very large and substantial screws for holding the platinum rivets, so that the gap between the platina in the break position is easily adjustable after wear; substitution of steel cams for the softer fibre ring.

Strange Happenings.

My incredulous correspondent has addressed a second and more polite letter to me on the subject of the gudgeon screws emerging from the cylinder *viâ* the walls, and only leaving a hole capable of being repaired by a clamped band. I freely admit the incidents are extraordinary ones, but inspection of the cylinders leaves one no less extraordinary alternative. It certainly seems incredible that the flywheels could jerk the errant gudgeon screw against the cylinder wall with sufficient force to drill a fairly neat orifice. I would timidly tender the suggestion that the mishap occurred to a very thin cylinder.

Spring Forks and Side-slip.

I am very loth to believe the contention of Mr. T. W. Irlam (page 244) that spring forks either emphasise or induce side-slip. It is easily granted if the springs be of a design that permits any lateral sway, but not otherwise. I am inclined to think the rider is probably responsible, as he is for nearly every side-slip, and that if Mr. Irlam and his friends exchanged machines and then charged the sand, the same riders would come croppers on their new mounts. Pace and nerve have a great deal to do with the safe passage of such obstacles as sand, new metal, and even grease. Mr. A. G. Reynolds stated the other day that the best preventive of side-slip was pace. This is equal to saying "nerve," for a timid rider would not dare to take grease at pace. Perhaps, too, there is something in sheer speed, for Mr. Reynolds said he always traversed grease "as fast as he could." I, on the other hand, take grease at the lowest road speed which permits my engine to revolve sweetly and evenly without jerking, *i.e.*, on a Motosacoche I take grease



A new pattern 3½ h.p. Norton engine (82 x 90 mm.) with M.O.V. showing the Bosch magneto and aluminium chain case.

at eight miles an hour, on a flexible 3½ h.p. at twelve and on a highish geared twin at twenty-two. We have not Mr. Irlam's frequent opportunities of riding through deep sand, but the sensation, on the few occasions when I have experienced it, has been just like riding over coarse new metal, though somewhat less abrupt. I find medium speeds dangerous on a thick patch of unrolled stones. I can get over them with absolute safety if I go full tilt; and my only alternative is to go so slowly that I can put my feet down and switch off comfortably if the rolling becomes too pronounced. If I had veldt tracks to ride on, I should first try charging the sand at a decent speed; I might come off no doubt, but if I did, I fancy I should come off just as quickly with a spring fork or a rigid fork, if differently.

EXPERIENCES ON BROOKLANDS TRACK.

By One who has Tried it.

I AM glad to see that the B.A.R.C. has decided to include a motor cycle race at the meeting on Easter Monday as an experiment to see if it will "catch on" with the public.

There is no doubt that the track is most suitable for motor cycle races, and it will enable some really fast times being made, as the trouble with Canning Town and other English tracks is that the banking is not suitable for speeds much in excess of fifty miles per hour, and to prevent this speed being exceeded a limit has to be placed on cylinder capacity.

This works out at about one-third of a litre, or 75 by 75 mm. However, in spite of these restrictions, several racers have done close to a mile a minute at Canning Town. The fastest combination appeared to be a Jap engine on Collier's Matchless, with a bore of 85 mm. and a stroke of 60 mm.

Now on Brooklands a motor bicycle travelling at fifty miles per hour would not even require to run up on to the banking, owing to the very gradual curve, and there is ample room for three or four competitors to ride side by side. This will give an idea of how safe the track is.

There were one or two bumpy places, but the track is now repaired. The most difficult thing in the future will be to arrange a handicap which will be fair to all. It obviously would be absurd to rate them on cylinder bore alone, if racers and roadsters are to compete together, and expect an exciting finish. The fairest way would be as follows.

The really fast men are all well known, and from the times they have made last year at Canning Town it would be an easy matter to handicap them to give an almost dead heat, as their racing machines will go round the track time after time with hardly a second's variation. The semi-racers and roadsters are more difficult, as their times vary more.

Assuming a scratch man can do sixty miles per hour (usually single cylinder racers stripped), we should then put down fifty-five miles per hour for Tourist Trophy machines, A.C.U. definition; full roadsters, about fifty miles per hour. Then racers, about 60s. per mile; Tourist Trophy models, 65s. per mile; full roadsters, 70s. per mile.

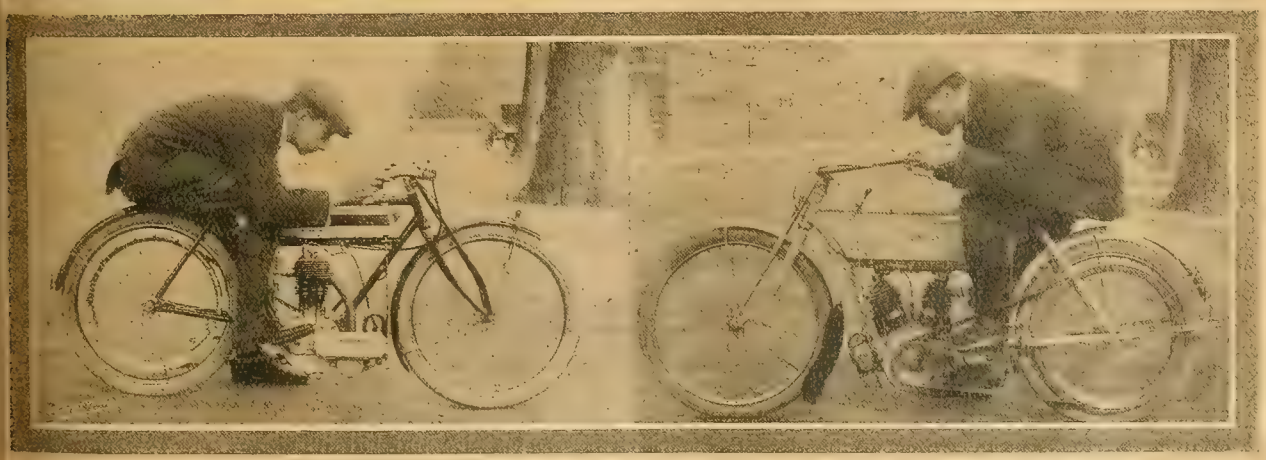
My Idea of a Fair Race.

Distance.—Twice round the track (five miles). Start the roadsters off all together. 25s. after, give the Tourist Trophy models word to go. Wait 25s. more, and then start the racers.

That is better than trying to start men (scattered all round a big track like Brooklands) at the same moment. First over the tape the winner. Every competitor covers the same distance, and can get his times afterwards for future races. Of course, it will be hard on some competitors, but the fact must be borne in mind that unless even and exciting finishes can be guaranteed the public will lose interest, and motor cycle events are liable to be discontinued.

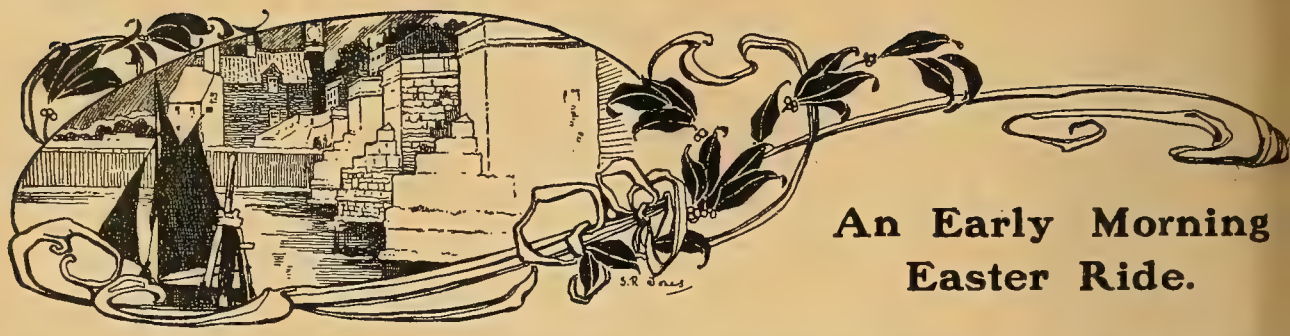
It makes a good sporting race for the various types of machines at present in use, and, while it undoubtedly hits the expert who can get a mile a minute out of a 2¾ h.p. machine to be beaten on handicap by a 5 h.p. twin which can only do fifty-one miles per hour, he has the satisfaction of showing what he can do, even if he does not get the cup. It also enables many men to enter who otherwise would not care to go to the trouble of stripping their machines for the race.

On these lines I think we should get a record entry and some exciting finishes.



W G. McMinnies (3½ h.p. Tourist Trophy Triumph). O. L. Bickford (5 h.p. Tourist Trophy Vindec).

These two Oxford enthusiasts contested the first motor cycle match on the Brooklands Track, and are among the entrants for the first open motor cycle race at Brooklands on Easter Monday.



An Early Morning Easter Ride.

THE majority of motor cyclists take their rides during the daytime, but did they only know of the delights which await the motor cyclist who will ride early to meet the sun, I fancy more motor cycles would be seen on the roads during the "wee sma' hours" of the morning.

The writer has more than once left a dance at three o'clock in the morning, changed to wa rner garments, and set out for a thirty miles rou d before finally settling down to rest. When the moon is shining full even on a frosty night, such a ride is most refreshing and enjoyable.

However, the present ride has nothing to do with moonlight trips. It deals with a short holiday spent last Easter with a motor cycle.

The writer, being employed in a bank, naturally wished to visit his people during the Easter holiday. Deciding to motor, the distance being some ninety-five miles, he retired early to rest, with the intention of riding by night and early dawn to his destination.

The ride to be attempted was one from Scarborough to Skipton. The machine was a 2½ h.p. lightweight Ariel fitted with all the necessary touring outfit. The machine had run for a distance of 4,000 miles without trouble, and no mishaps were anticipated on the early morning run.

Ready to Start at 3 30 a.m.

By means of the alarum clock the writer was wakened at 3 a.m., and at 3.30 was dressed and ready to start. Everything had been put in readiness the preceding evening. It was therefore only necessary to light the lamp, inject paraffin through the compression tap, and put on waterproofs before starting.

From the commencement everything went well. The lamp burned brightly, and the engine fired first turn of the pedals.

At the start there was no sign of daylight, and the bright light shed by the powerful acetylene lamp was much needed and appreciated.

After riding about an hour without any sound other than the crisp pop, pop of the engine a peculiar feeling came over me that I could see the road more distinctly, and yet there did not appear to be any more light in the sky. This was really the beginning of the dawn, and about half an hour afterwards the road could be plainly seen. The water of the lamp was then turned off, as the light was not required. As the road could now be plainly seen, and ! owing there would be no traps at that time of the day, the spark was advanced and the throttle opened, and a few moments later the machine was flying along, all out.

Brighter and brighter became the sky, and the air, which was rather cold at the start, became warmer.

Then came the sunrise. I will attempt to describe it, but am afraid I cannot do justice to it. Every where silence. The amber streaks in the sky leapin into crimson flame, deepening as they sailed alon to a tawny orange. Within the space of a few minute the whole aspect of the heavens completely changed The burning scarlet and orange hues had all melte into a transparent yet brilliant shade of pale mauve across the sun slowly floated clouds of pour gree fringed with a soft primrose shade. Now and again the cry of some wild bird, startled by the approach the motor, was heard, and seemed to intensify the stil ness of the morning.

To a lover of nature and the picturesque the sce was entrancing, and made one long to stop for a spa to admire the beauties which lay on every hand.

Time was, however, progressing, and this glorio scene was soon left behind. The sunrise soon lost beauty, and had it not been for the absence of traf on the roads and the freshness of the morning air o could have imagined that it was mid-day.

Alone on the Earth.

Up to this time not a single soul had been seen, a I was quickly approaching Wetherby—that famc control known to so many competitors in the Londc Edinburgh run.

It was here that the first signs of life were seen. few men going to work eyed me as I flew past, l otherwise made no remark at my early appearance.

On, on sped the plucky little motor, never falter in its stride, but keeping up its merry explosions w a heart which seemed sound and true. The next m however, showed how one cannot always depend on sound of the engine. Misfiring commenced, and worse and worse, but, wishing to get to my destinati I did not dismount to investigate matters. Finally, engine suddenly stopped firing altogether, and c pression vanished at the same time. The diagnc proved correct before dismounting. The compress going suddenly pointed to the valves, and in this c the cotter had sheared. It was the work of a moments to put in the complete valve which I alw carried as a spare.

During the time I was fitting this valve a tra came up and proffered assistance, saying that he an "engineer." He did not look a particul savoury one, so I declined his aid, and completed job myself, and left him standing watching me u I was out of sight.

The lost cotter caused the only s p, and I arri at my destination in good time for a steaming br fast, to which I did full justice.

An Early Morning Easter Ride.—

Mention might be made of the quantity of game of different kinds which crossed the road on this journey. Pheasants, hares, rabbits, and coveys of partridges were seen, all intent on getting their morning meal.

The return journey was accomplished at night, and was a non-stop journey throughout. Several animals crossed the road—in one case a large animal, which I think was a fox—and numerous moles, which can run very fast when they see the light of a motor cycle coming their way. A few rabbits were also noticed, but of human life there was practically none.

Such, then, is the brief account of the most enjoyable motor run I ever made. The freshness of the air makes one inclined to shout with delight. When one has also a well-tuned engine throbbing beneath one the sensation of flying along without the least effort must be experienced to be thoroughly appreciated.

Those readers who remember the summer weather which was experienced last Easter should make a similar attempt at holiday-making this year, commencing the journey at about 3.30 to 4 a.m.

CLARENCE PONTING.

CULLED FROM CUDHAM.

I DO not think that any of the numerous spectators at the Lewisham Automobile Club's hill-climbing competition held on the 4th inst. at the celebrated Cudham Hill expected the lightweight machines to reach the finishing line either with or without aid from the pedalling gear; in fact, many were surprised to see so many of the heavyweights succeed. One of the oldest motor cyclists in this country offered to bet a certain rider five to one that he would not get up the hill. This was before the rider knew that the venue of the hill-climb was Cudham. The rider fought shy, much to the relief of the other party later in the day. Singularly, this particular rider (F. W. Barnes), to my mind, made the best performance of the day. Of this more anon.

Of the five lightweights entered two succeeded in reaching the finish, the weights of these two machines, according to the programme, being 94 lbs. and 95 lbs. respectively. The best performance (which does not necessarily mean the fastest) was made by the Fairy, which was to be expected, since its power (2½ h.p.) was ¾ h.p. more than the other successful machine, which was a 1¾ h.p. Chase ridden by Arthur Chase, who I was pleased to see on the "warpath" again. Chase is well known as an old professional cyclist, and his muscular powers doubtless were no mean factor in his performance. He started pedalling comparatively early, and went "all out" right up to the finish.

Almost Climbed Cudham without Pedalling.

J. B. Beck, the rider of the lightweight Fairy, reached a point some twenty-five yards from the finish before he started pedalling. Apparently he was unaware that pedalling was permitted, for when he was just on the point of stopping somebody shouted to him to pedal, and he very quickly responded, and saved the situation. There is no doubt Beck could have improved his time considerably by pedalling earlier. Of the other three machines there was little to choose between their relative performances, all three coming to a standstill at about the same spot.

Naturally the performance of the lightweights suffered in comparison with the heavyweights, which literally flew up the hill—so fast that almost every rider eased up at the S bend by switching off or by some other means. Adverting to F. W. Barnes's performance on the spring frame Zenette, I wish it to be distinctly understood that I leave speed out of the question in referring to his performance. This machine was fitted with the variable gear recently described in *The Motor Cycle*, and it was this gear that enabled the rider to climb the hill and negotiate the tricky S bend in a comfortable way, comfortable because the speed was reasonable.

Altering the Gear to Suit the Gradient.

He was busy altering the gear ratio on his machine whilst negotiating the S bend, which means that he had only one hand free for steering, whereas all the other riders in Classes I. and II. were obliged to cling to their handle-bars. It was the first time this variable gear had appeared in competition, and it behaved admirably. I should, however, like to see the gear controlled from the handle-bar. I am sure that Barnes's performance impressed any prospective motor cyclists that may have been present, and, indeed, some actual motor cyclists, more than the wild rush and dash of other machines, which leapt about on the uneven surface of the road in a manner calculated to frighten rather than please. I say this in no deprecatory sense. Nobody admired the pluck of the riders of the fastest machines more than I did; but though these fast machines will appeal to one class, they will not to another. I suppose the point that concerns the makers is, Which class is in the majority? Thousands of motor cyclists, and maybe hundreds of prospective motor cyclists, will have read the accounts of the competition, and be in absolute ignorance of the risks involved by those who made the fastest times. I anticipate that some of the competitors will assert that they could have ridden slowly or comparatively slowly, but I doubt it. The top of the hill is 1 in 4.3, and it was necessary to rush at this section and negotiate two nasty bends. Thank goodness there are few hills like Cudham in existence.

HARRY G. BELL.

An article recently published in *The Motor Cycle* —"The Selection of Gear Ratio"—has prompted Messrs. Forbes and Co., Chapel Street Works, Edinburgh, to write us stating that they are prepared to work out power curves of any motor cycle engine and take brake tests. Few firms undertake this work in connection with motor cycles.

J. C. Fuller and Sons send us a sample of their latest non-trembler induction coil for motor cycles. This coil retails at an exceptionally low price; nevertheless it is well made and finished. It measures over all 4in. by 2⅞in. by 2⅝in., and it is therefore particularly suitable for lightweight machines. The makers' address is Woodland Works, Bow, E.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not **must be accompanied with a stamped addressed envelope for reply.**

Preventing a Leak of Compression.

Kindly tell me how to cure loss of compression in my 3½ h.p. Quadrant? The leak occurs where the inlet valve seating screws into the cylinder. I have tried new washers, and have also tried fortifying them with asbestos thread, but after a brief improvement the leak is as bad as ever. I have seen fish glue recommended in *The Motor Cycle*. Could you tell me how this should be applied, and where one can get it?—A.M.T., Walton.

The trouble may probably be cured by fitting two washers, one on top of the other. Fish glue may be obtained from any drysalters. It should be painted round the edge of the valve cage.

Specification of a New Mount.

I am about to have a touring machine built up for me with a 6 h.p. twin engine, and seek your advice upon the following specification: (1.) Chater-Lea No. 6 frame made about four inches longer to take magneto between back of rear cylinder and pedal bracket. (2.) Bosch high tension magneto. (3.) What size driving belt (rubber) shall I require for this engine with a variable pulley? (4.) Brown and Barlow carburetter? (5.) If I fit footboards shall I require pedals as well, if for warming up I fit an engine starting device? (6.) Are pan seats comfortable for long-distance riding in conjunction with footboards? If so, where can I obtain an aluminium one as fitted to some machines? J. B. Brooks and Co. inform us they do not make a pan seat. (7.) Tyres 26in. by 2¼in. Palmers, with Rich's detachable tubes. Are the latter reliable?—S.N.

(1 and 2.) We agree. (3.) We should advise a 1in. belt, and even larger if a sidecar is to be used. (4.) Brown and Barlow. (5.) You do not require pedals if you fit a device for starting the engine. (6.) Yes, these seats are most comfortable. Messrs. Brooks do not actually make a pan seat, but they make a spring seat very like one, and we think you can buy nothing better. (7.) The tyres and tubes mentioned are to be recommended.

From South to North and Return.

During the Easter vacation I intend (with a friend) having a tour. My object is to get to Newcastle. I can manage as far as Luton from here (Harrow), but after that am rather in a fog as to which towns to pass through, being the best for motor cycles. If you could let me have a list of the main places *en route* I should be obliged. On the return we intend travelling *viâ* the West Coast, *i.e.*, Carlisle, Shap, Preston, Wigan, Shrewsbury, Oxford, and London. But the return is not so important, as we shall not be in a hurry after once leaving Newcastle. —E.L.

Your best route from Luton would be as follows: Luton, Hitchin, Biggleswade, Stilton, Stamford, Grantham, Newark, Retford, Doncaster, Aberford, Wetherby, Boroughbridge, Scotch Corner, Darlington, Durham, and Newcastle. Instead of coming home through Wigan, etc., it would not be a bad idea to follow this route: Kendal, Ingleton, Settle, Skipton, and Otley, from which you continue until you strike the Great North Road again just south of Wetherby.

Defective Seating in Carburetter Needle Valve.

I am interested in I.B 816's letter in *The Motor Cycle re* "the petrol dripping from the carburetter." I am suffering from exactly the same trouble myself. I have taken my carburetter (which is a Longuemare) to pieces, and have had the needle ground in, but still the petrol rises too high in the jet and overflows. You state "that the weight on the needle should be raised a fraction." How can I do that? Do you mean the weight to be attached to the top of the actual needle itself, or to the round brass cylinder through which the needle goes? Would a little solder do for a weight? I believe myself the needle has not been ground in quite straight, and consequently the little cylinder rubs against the sides, and does not close properly, hence the overflow in the next chamber. Do you think a new needle would put the matter right? —J.O.H., Shrewsbury.

First of all make sure that the needle valve itself beds properly on to its seating. You can test this by removing the float and noticing if petrol finds its way past the needle point. Secondly, if the level is too high (the petrol should come to within about ⅛in. of the top of the jet) raise the weight slightly on the needle valve. The float should be lifted off the valve and the needle removed, and the weight held in a gas flame for a few seconds. It should then be placed between two pieces of wood in the jaws of a vice, and the end opposite the point of the needle should be gently tapped. The float may then be replaced and the height of the petrol in the jet measured. See the article which appeared in *The Motor Cycle* on the subject on May 8th, 1907. The motor bicycle should be perfectly level and not on a stand when the level of the petrol is being tested.

Trembler Coil at Fault.

Could you suggest a few causes for a trembler coil refusing to vibrate? It has only lately started to do this. It will tremble for, say, 20 secs., and then the disc will stick to the iron core and not come away. If I turn back the contact screw it does not vibrate at all. Can this be explained by a short circuit anywhere, or accumulator run down? As the latter only gives 3.75 volts I have sent it to be recharged, but a ¼-volt should not make any difference to the coil. The coil first started to do this after adjusting the screw as you said—turn back the screw until it misfires, and then turn in a trifle and fix. As this could have done no harm, it must only be a coincidence.—H.E.A.

Probably the accumulator was showing a fictitious voltage, and contained a less number of volts than was shown on the voltmeter. 3.75 volts is not enough to work the coil properly, and probably you will find the coil will function all right when accumulator is recharged. If, however, the coil continues to behave in the same way probably a new blade is required. Also see that the platinum points are true and clean, and that the platinum has not all disappeared. Sometimes when locking the screw the adjustment of the coil is upset.

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has
Direct Drive by Belt,
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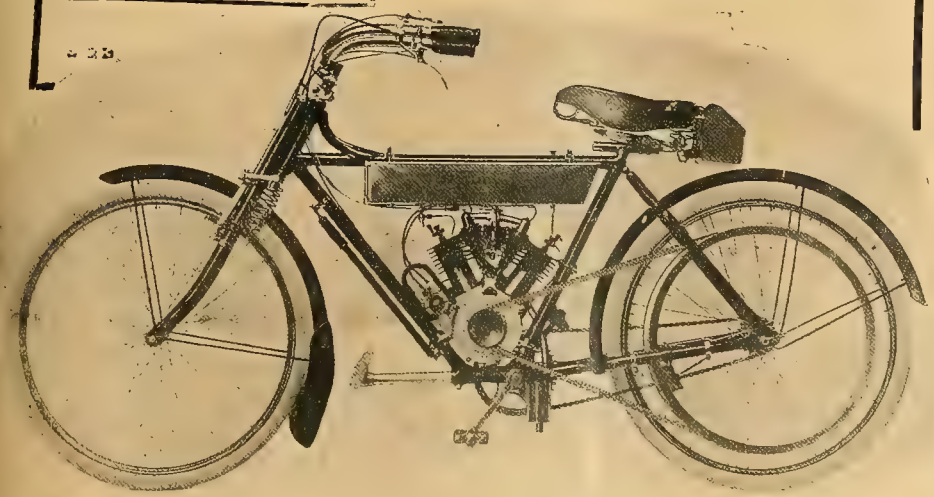

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I fitted it to the front wheel of my motor cycle in May, 1906, and took it off to-day to see what it was like inside.

It has only once been touched with the pump since fitted, and has never been punctured.

It has carried me safely through many important competitions, including A.C.C. Land's End to John-o'-Groat's Trial, 1906; London to Plymouth; and six days' trial, 1907; M.C.C. London to Edinburgh, 1907, and also several long tours.

The ribs are not worn much, and both cover and tube look like being good enough for next season.

Yours faithfully, H. GILLARD COVE.

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Premier Searchlight

is now a recognised **necessity** on a modern motor cycle. In a recently published voluntary testimonial a delighted user says it "**FILLS A GAP** that has been open for so long." Now, belated copyists are claiming to **fill that gap.** But the gap can't be filled twice. We were there first. We are not saying much about the details of the **PREMIER Searchlight** this week. Everybody knows now that the price is **30/=,** **INCLUDING GENERATOR,** and that it stands alone as the original and ideal **BRITISH-MADE Searchlight.** In this advertisement we want to introduce the

WEIGHT:
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WARWICK Motor Cycle

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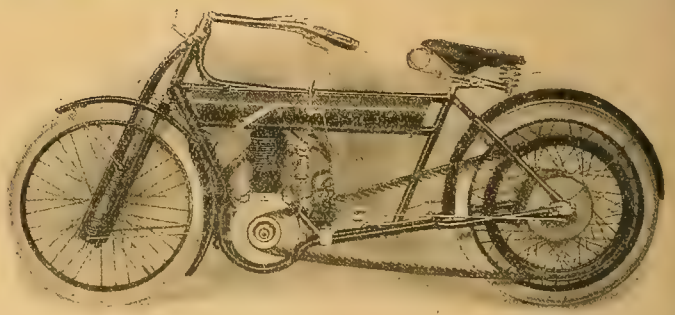
With PREMIER Two-speed GEAR and ROC (licensed) Internal-expanding CLUTCH.



It is a little in front of the others in the race towards Perfection—not much, only two or three seasons, perhaps—but it represents the goal of development on present lines. Wheelbases have been growing gradually longer, and frames have been dropping lower, every year. The wheelbase of the **WARWICK** is 5ft. long, and the saddle is 31in. from the ground. The rider sits in the saddle, and lets in the clutch with a pedal (car-style). He can start as easily uphill as elsewhere. Traffic is more easily negotiated with the 4 h.p. engine fitted than it is with a 2 h.p. engine without the **PREMIER TWO-SPEED GEAR** and **ROC** (licensed) Internal Expanding **CLUTCH,** which makes these things possible, and renders pedals and pedal-gear obsolete.

IMMEDIATE DELIVERY from Stock. Fullest details on application.

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A Mysterious Failure.

Can you explain what makes an otherwise perfect machine fail after, say, five miles on half throttle against a wind? The symptoms are a sudden stop within a few yards, no knocking, but a peculiar choking noise as though piston was about to seize. A hurried dismount proves everything quite free, and engine restarts immediately when extra air is closed. Lubrication ample, correct mixture, engine not particularly hot, magneto ignition all in perfect order, petrol pipe clean, vent to petrol tank and jet clean. Is there any truth in the theory that float chamber can be emptied faster than the supply can be maintained?—PUZZLED SECUNDUS.

The symptoms are peculiar but not unknown to us. It sounds like tight piston rings. The theory regarding float chamber could only be upheld if the passage or passages from float chamber to jet chamber were smaller than the jet, or there was some communication between jet chamber and float chamber other than the petrol duct. We should recommend an examination of piston rings and cylinder, also see that needle valve does not stick or float may jam against sides of float chamber, and by its failure to sink it keeps needle valve closed. The point of needle valve should not be same taper as hole, or it may stick in the hole; it should only bear evenly on top of cone.

Touring from York to Devonshire.

Next month I intend motor cycling from York to Exeter (Devonshire). As I do not know that part of the country at all I am writing to ask you if you could kindly tell me what counties and towns, etc., are worth seeing. As I have the three Contour Road Books I shall have no difficulty in finding the road if I know where I want to go.—B.M., York.

The route we presume you would follow we give hereunder: York, Doncaster, Worksop, Mansfield, Derby, Burton, Tamworth, and Coventry. Here the country becomes more interesting. Kenilworth (famous for its castle), Warwick (also famous for its castle), Stratford-on-Avon (the birthplace of Shakespeare), Broadway (an exceedingly picturesque village at the foot of the Cotswold Hills, the home of Madame de Navarro, Miss Mary Anderson), Cheltenham, Gloucester (famous for its cathedral), while in the neighbourhood is Tewkesbury (which contains a fine abbey), Stroud, Bath (here Bath Abbey will be found interesting), and Radstock. Halfway between this town and Wells is the turning to the village of Priddy, which you had better look for on the local maps. From this village Cheddar Gorge is best approached, which is a remarkably fine piece of scenery. This, of course, is out of your way. Having seen Cheddar Gorge you would proceed south *viâ* Axbridge, Bridgwater, and Taunton. If you do not go to Cheddar Gorge continue straight on to Wells (famous for its cathedral), Glastonbury (famous for its abbey), and continue to Taunton through Ottery and Durston. From Taunton you reach Exeter *viâ* Cullompton.

Dry Battery Ignition.

I use a 3½ h.p. light tricar as a runabout, and a large amount of my riding consists of short distances, say five to ten miles, and then perhaps a spell of a week or so during which I do not use machine. I find the usual method of accumulator ignition a source of trouble under these conditions on account of the constant recharging, whether the machine is used or not, to say nothing of that uncertain feeling as to whether accumulators are run down or not. Do you advise ignition by dry battery (trembler coil)? Do dry batteries run down of their own accord, or deteriorate in any way by keeping if properly switched off? Are they destroyed when used up?—F.H.W.

Under the circumstances a dry battery might be of assistance, but it is absolutely essential that a plain coil is used. All batteries run down quicker if used with a trembler coil, which is usually more wasteful in current than a plain coil. When a dry battery has run down it is no further use without a lot of messing, which is not worth the bother. Dry cells deteriorate of their own accord, but not so much if kept in a cool place.

READERS' REPLIES.

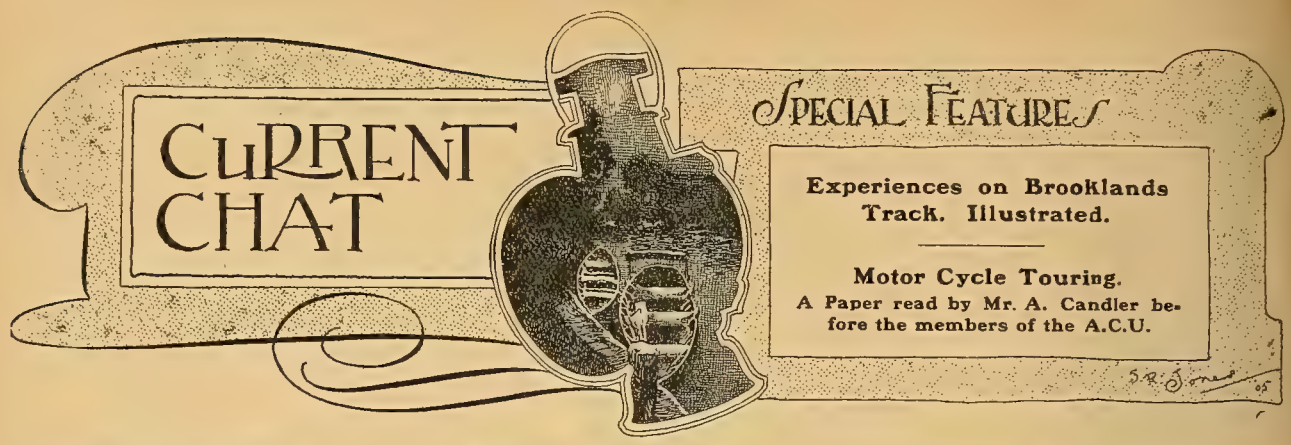
Re the query raised by "A.M." (Hanley). He will not find dual coil ignition workable on his Minerva, that is, if he intends using a plain and trembler coil. I recently made a similar kind of experiment, also on a 3½ h.p. Minerva, fitting up a very fine distributer coil off a six-cylinder Napier car, and as you point out, even with a very fine trembler coil a slight resetting on the timing is necessary. It is not possible on a Minerva to effect this by resetting the sparking cam as it fits on a square shaft, but a tooth in the timing did it in my case. With this very high speed trembler, I get better results than with any plain coil or magneto, as it starts from a lame walking pace and fires perfectly at slowest speeds, has large contacts, and as far as I can see takes less current than the previous plain coil. With a good accumulator I anticipate it will require less attention than a magneto. A good trembler coil will work perfectly with the Minerva make and break. With regard to the mysterious trouble raised by your correspondent, I have known exactly the same thing occur on a Minerva through a crack in exhaust valve seating, this expanding as engine got hot, hence falling off in power.—DISTRIBUTER.

About a month ago I wrote to you as to the difficulties I had with my 2¾ h.p. Bradbury motor cycle. It would not climb the slightest hill unassisted. You very kindly gave me some hints as to larger jet for carburetter. This made very little difference, if any. I fitted new piston rings myself; this improved the compression, but seemed to make very little difference in the climbing. A few days ago I took my machine to a motor works in despair, and the people there found that the exhaust valve was wrongly timed, and the explosion did not occur until the piston was half-way down because the valve was not closed. I have since tried the machine, and it flies up the hills.—J.F.P., Bath.

I see that "A.M." in your issue for March 25th has difficulty with his engine stopping. I had a similar experience with a small single-cylindered car a short time back. It would run perfectly for some miles, and then, as if some heavy load had been put on the car, it would slow down and stop. At first I judged the piston seizing, and afterwards the back axle at fault, but it was subsequently found that the cause of the difficulty was the carburetter flooding. I would advise "A.M." to first see that this is in first-rate order before touching the electrical circuit. Of course, in this case, flooding the carburetter would only tend to make things worse. I would suspect the needle valve binding, and so erratically working.—H. LOMAS.

With reference to the frequently recurring complaint in your journal of misfiring in one cylinder of twin engines, possibly my experience may assist, at least, some of the querists. In the early part of last season I was troubled with intermittent misfiring in one cylinder of my 5 h.p. Peugeot twin engine. This occurred chiefly at any attempt to throttle. The inference was, of course, that the tension of the A.I. valve springs was at fault. I repeatedly adjusted these valves with the greatest of care, ascertaining on each occasion that the tension of springs, and the lift of each, was precisely similar; nevertheless, the annoying misfiring was still in evidence. Eventually I observed that the plunger in dome above the front inlet valve was in constant motion while the engine was running, and upon closer examination discovered that the spring of plunger had weakened considerably, and from constant vibration of plunger the hole through which it passes had worn abnormally large, thereby admitting a considerable quantity of air to that cylinder. Upon rectifying this the misfiring ceased at once, and the range of the throttle lever increased accordingly.—J. C. DANIELS.

"THE AUTOCAR" contains each week much interesting information which, although written in regard to motor cars, is also applicable to tricars and motor bicycles. It is published weekly, price 3d., and can be obtained from all newsagents and bookstalls


CURRENT CHAT
SPECIAL FEATURES
Experiences on Brooklands Track. Illustrated.
Motor Cycle Touring.
A Paper read by Mr. A. Candler before the members of the A.C.U.

Seven Medical Men in One Club.

It is interesting to note that there are at present seven doctors in the Great Yarmouth and District Motor Cycle Club.

The A.C.U. Chairman.

We regret to hear that the chairman of the A.C.U., Mr. Robert Todd, has been confined to his bed with a severe attack of bronchitis.

Dinners to Ripley Roadmenders.

The fund for the Ripley Roadmenders' dinners and entertainments has now reached a total of £17 5s. 9d. The third dinner was on Saturday last, at the Anchor Hotel, Ripley.

The Meet of Motor Cyclists at Richmond.

Two more clubs have arranged a run to Richmond, Yorks., on Good Friday, viz., the Scarborough M.C. and the York County M.C.C., making a total of nine clubs attending this inter-club meet.

The Brooklands Race.

It has now been decided that the first open motor cycle race at Brooklands will be contested on Easter Monday. The full list of entries will be found on another page of this issue.

Found by "The Motor Cycle."

Whilst a writer in a car paper and others are putting in similar claims, Cudham was undisputably "discovered" by our Southern correspondent. The first report of a trial and an illustration of the hill and description of same appeared in *The Motor Cycle* as far back as April, 1906. Other Cudham claimants please copy.

The April Fool's Day Trick.

Anent the April 1st 'bargain" referred to in these columns last week, we have since heard that the first telegram accepting the offer arrived a few minutes after 8 o'clock on the morning of publication of *The Motor Cycle*, and at 8.30 a man came with a van prepared to take the motor cycle away, then more telegrams, and by 11.30 a.m. twenty people had called with the money in their hands demanding the £20 bargain in motor cycles. Some of the would-be bargain buyers got very nasty, and one individual, who wanted to fight, said he came from Peckham. These quick results go to prove the demand for motor cycles, but we hope there will not be another April Fool's Day trick.

Infringing Patent Rights.

Like many another patented article the Watawata belt has not lacked imitations, and in France particularly Messrs. O. and W. Ormerod have had to take legal proceedings against parties for deliberate infringement of patent rights. Proceedings have just terminated in a judgment in favour of Messrs. Ormerod with substantial damages in two cases.

THE NEXT ISSUE.

IN consequence of the Easter Holidays "The Motor Cycle" for next week will be published one day later than usual, i.e., Thursday morning, instead of Wednesday.

Open Sesame.

The A.A. recently organised a little continental trip for Mr. Charles Jarrott and his motor car, and incidentally relieved him of all worry and trouble in connection with the shipping and unshipping of the car and "clearing" it through the Customs at Boulogne. The following is a copy of the telegram from the A.A. to Major Stevens, Gare Maritime, Boulogne: "Charles Jarrott and car AA 6000 arrive Boulogne first service April 2 *en route* Italy, wants clearance, permis circulation, but no license, make violent love French Customs, establish record, want eighty litres essence." We understand that on the day above-mentioned Mr. Jarrott was heading due South exactly four minutes from the moment the boat stopped at Boulogne Quay. The above is truly a princely and luxurious method of travel, and not at all compatible with our experience of cross-Channel passages. Motor cycles appear to be allowed to travel on sufferance, are usually relegated to the uttermost depths of the luggage deck, and no provision is made for slinging them unless a rough rope and two heavy iron hooks can be called such. However, we were not members of the A.A., and future experience may be more pleasurable when provided with the magic badge which ought to be supplemented with the letters O.S. (open Sesame).

Speed Limit on the Great North Road.

A ten miles speed limit will come into effect on Easter Monday in the parish of Colsterworth. The stretch of road to which the regulation applies extends from the junction of the Great North Road with the northern end of Back Lane, to the milestone indicating 102 miles from London.

A New Four-cylinder F.N.

What is to be known as the 1908½ pattern F.N. four-cylinder motor bicycle has made its appearance on the American market. The engine is a 5 h.p. compared with 4½ h.p. in 1907, a 20in. frame is used instead of a 22in., also a special ball bearing Bosch magneto, and heavier tread tyres.

Open Motor Cycle Hill-climbs.

Owing to the amount of inconvenience caused by competitors in open hill-climbs practising on a hill for days prior to the event, the committee of the A.C.U. has decided that it will not in future grant a permit to any club unless the following clause is inserted in the regulations: "Any competitor found practising on the hill prior to the competition will be disqualified from competing in the event, and his name will be submitted to the Auto Cycle Union."

Petrol Imports Fluctuate.

1,629,420 gallons of petroleum spirit were imported last month compared with 747,873 in March, 1907, and 3,613,431 gallons in 1906.

Imports of Motor Cycles.

Fewer motor cycles were imported last month as compared with 1906 and 1907, the 115 machines imported being valued at £2,998 and parts £2,614—£5,612. During the three months ended 31st March the imports reached a value of £17,190, as compared with £22,135 last year and £20,892 in 1906

The Exports.

Seventy-six British motor cycles were exported last month, which, together with parts, were valued at £4,321. The number exported from January 1st to March 31st was 184 this year, 173 in 1907, and 194 in 1906. Together with parts the total value of the three months British exports was

1906.	1907.	1908.
£12,442.	£14,448.	£13,229.

Add to above the exports of foreign motor cycles, and the figures are £13,965, £16,662, and £15,019 respectively.

The Motor Cycle Racing Outlook.

The most attractive item at a cycle race meet is a motor cycle race, and London sports promoters now seem alive to this fact, as we hear an increasing number of motor cycle events will be included in the principal London meetings this year.

Auto Cycle Union.

The next Quarterly Trial for motor cycles over the usual course will be held on Wednesday, April 29th. The annual open hill-climb will be held on May 16th, if possible in private grounds, and the secretary of the Union will be pleased to hear of any place suitable for the purpose.

The Motor Cyclists' Ideal.

The work of checking and tabulating the replies on the forms circulated with our issue of March 18th is proceeding apace, and very shortly we hope to publish the whole of the figures, which are sure to prove most interesting.

To Nottingham and District Motor Cyclists.

Reverting to our paragraph pointing out that Nottingham is one of the few large towns without a motor cycle club, Mr. E. G. Young writes that when he started one year ago it was a little too early. He is of opinion that there are plenty who would join a motor cycle club in Nottingham now, and is willing to give his heartiest support to any movement to form a club. Those riders interested would do well to communicate with Mr. Young. His address is Trent Bridge, Nottingham.

The Meet of Motor Cyclists at Richmond.

The following programme is in the hands of the Middlesbrough and District M.C.C.: 11 a.m., arrive Richmond, explore castle, etc; 12.45 p.m., conference with other clubs at Town Hall. Business, election of chairman and secretary for 1909 meet, selection of meeting place, etc. 1.30 p.m., official photograph for *The Motor Cycle* in Priory Grounds (if possible); 2 p.m., luncheon; 3 p.m., football match North v. South; 5.30 p.m., tea; 6.15 p.m., disperse for home.

Lightweight Motor Bicycle Trials.

The Automobile Club of Nice will hold a lightweight motor bicycle trial from the 25th to the 27th of April inclusive. The machines will be subjected to a trial on rough and mountainous roads, a speed trial on the flat, and a hill-climbing contest. The competition is open to motor cycles of any weight, and will be divided into two classes, one for single cylinder, the other for multi-cylinder machines. At the end of the trial competitors in each class will be placed in accordance with the total weight of machine and rider.

FUTURE EVENTS.

April 16-20—M.C.C. Easter Tour.
" 17—Inter-club Meet of Northern motor cyclists at Richmond, Yorks.
" 18 and 20—Brooklands Car and Motor Cycle Races.
" 19 (Easter Monday)—Lincolnshire M.C.C. Hill Climb.
" 22-28—Auto Cycle Club of France Reliability Trials.
" 25—Hertfordshire County A.C. Open Hill-climb for Motor Cycles.
" 29—A.C.U. Quarterly Trial.
May 2—M.C.C. Members' Hill-climb.
" 6—"The Motor Cycle" Special Spring Number
" 9—Brooklands Motor Races.
" 9—Essex M.C. Open Hill Climb.
" 16—A.C.U. Annual Hill Climb.
June 5-8—M.C.C. London-Edinburgh Run and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Challenge Cup.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 13-18—A.C.U. Land's End to John-o'-Groat's Six Days' Reliability Trial.
" 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.

The reliability test will be held on a course about twenty-five miles in length. The speed trial will be with a flying start, and for the hill-climbing contest competitors will have to cover a portion of the La Turbie (a formidable hill). Pedalling will not be permitted.

The 1908 London to Edinburgh Run.

In the preliminary announcement of the Motor Cycling Club's famous annual competition—the London to Edinburgh run—a copy of which has just reached us, one or two important alterations are to be found. In the first place, the entry fees have been raised. For the single journey to Edinburgh a fee of 10s. 6d. will be charged, but if it is desired to enter for the Schulte Cup or the M.C.C. Challenge Cup, or both, the sum of one guinea will be exacted. This has been done with the object of excluding those people who join the club simply and solely for this competition and leave other club events unsupported. Silver medals in place of certificates will be given this year to all who reach Edinburgh inside 30 hours. Mrs. Marshall, of the George Hotel, Grantham, has kindly decided to invite all the competitors to breakfast at her expense, and lastly, it has been arranged to start the two-wheeled machines first, the three-wheeled second, and lastly the four-wheeled vehicles — a really sensible arrangement. This year Mr. S. H. Fry is in charge of this important event.

Motor Legislation in Belgium.

A new Motor Act has been passed in Belgium, which provides that all cars must carry numbers front and rear, the latter to be illuminated at night, but this ruling does not apply to motor cycles. Another provision is that motor cyclists are allowed to use the byeways and tracks hitherto reserved for cyclists.

Meet of members of the Perth and District M.C.C., on the occasion of a speed judging competition.

MOTOR CYCLE TOURING.*

Mr. B. Chatterton took the chair, and introduced the lecturer, and remarked that Mr. Candler was one of the pioneers of motor cycle touring in this kingdom. Anyone who had the pleasure of touring with him would find him an excellent companion. Mr. Candler was a great man at seeing the sights and beauties of the country and meeting with all sorts of adventures, and would no doubt give a very interesting discourse on the experiences one has in touring on a motor cycle. (Cheers.)

Mr. Candler said that it was with great pleasure he had received the invitation from the Auto Cycle Union to come to address them on the important subject of motor cycle touring, and for the reason that he thought it a subject that had not been treated with the cordiality it deserved. He apologised for not following custom by submitting his remarks in the form of a paper, which they could have in their hands—a method which had its advantages, though it was desirable at times to have a change, and he would be less formal and more conversational. Some people liked walking tours. He knew a gentleman who used to go every year a tour round the coast, taking train to a certain part, and then following the coast line on foot, and in this way he toured the whole coast of Great Britain. The following year after completion he died. (Laughter.) Some people liked to take a train journey, say to Lucerne, by a very much-advertised five-guinea trip, with all its discomforts of railway compartments with ten persons, and arrive after a twenty-four hours' journey exhausted, stay about three or five days, and then come back home, having done Switzerland. Such a trip in ninety-nine out of a hundred cases will have done no good.

The Best Form of Holiday.

He thought the very best way a holiday could be enjoyed was any form of motor touring. He needed not to go into the doctor's argument—the way in which the quick passage of the air pumps oxygen into the lungs—it was too obvious; but, speaking seriously, there was a case on record of a doctor who was dying of consumption, and had about a month more to live, when a friend quite by accident took him for a drive of one hundred miles by motor. It did him so much good and made him so happy that his friend took him more drives, and, strangely enough, it seemed to be curing the disease. They kept up the treatment, and it is a positive fact that that gentleman was absolutely cured, and is now able to go back to his work again, and is still well. Motor touring was strongly to be commended.

Before one could go for a tour one must own a motor cycle, and he now came to a part of the subject which would lead to discussion—the proper type of machine for a motor cycle tour. For the moment he would leave aside patterns having sidecars and those horrible things called trailers, and would confine his remarks to motor bicycles. Undoubtedly we have a most perfect form of machine for touring, but he would go so far as to say that there is very little future for the motor cycle industry developed on the lines of creating those monsters capable of 52.4 miles per hour. The machine that is capable of doing that is not suitable for motor cycle touring, and clubs (probably the Auto Cycle Union) are to be blamed for not organising competitions which will cause manufacturers to make a machine which will be better for motor cycle touring. A two-speed gear is absolutely indispensable if you would have a motor cycle that will take you in any part of the country; and by two-speed gear he did not mean gears that would be capable of up to two hundred miles only before bursting up. Manufacturers are to be blamed for putting on the market two-speed gears that have not been thoroughly tested before getting into the hands of the public. All these things ought to be tested thousands of miles before being put on the market. This was the cause why so few tour and why few, considering the vast field there is, invest in a motor bicycle. It would be safe to say there are 300,000 people who could afford to buy a motor bicycle, if they could feel sure it was reasonably reliable and suitable for motor cycle touring. Well, one required a two-speed gear that is reliable and would stand 10,000 miles without spending money on repairing; a good clutch that would enable one to start again on any hill that one may stop on to admire the scenery. These things were essential to the proper article for touring. As things stand at present, the most suitable motor bicycle is the single-cylinder. Here (the speaker continued) he was on very debatable ground he kne but with regard to power he favoured a 3 to 3½ h.p. machine weighing at present about 140 lbs.

The Luggage Question.

With regard to luggage, every person has a differe opinion. Some people can go away with a tooth brus others want apparatus even to the extent of evening dr for dinner. It is very necessary to have a dust c mackintosh. It occupies small space, and keeps one dry stormy weather. Something else, indeed, was needed, a that is a suitable companion. Reverting to the questi previously dealt with casually—why do so few people tour the motor cycle, and why are there so few motor cycl seeing the potentialities are 300,000 people?—he thought t answer was because motor cycles made, say, six or sev years ago were so utterly unreliable, but motor cycles at t present day are made so that one can go big tours wi absolute certainty; in fact, with more certainty than peo could, twenty years ago, tour with an ordinary bicyc What a grand sport the public are missing. They frightened. He came across a man with a motor bicy years ago, and asked him, are these things any good? a the stranger replied that they were the biggest fraud of t century. (Laughter.) Of course, such things made l impressions. He had had the curiosity when touring to sou people, and they had told him they were frightened, t the things were so unreliable.

A Suggestion to Popularise the Motor Cycle

He wished he could hit on some plan to let people kn that things are not now what they were. He had thou that a band of amateurs might mount their machines, go a tour, say, from London to Land's End, about 100 miles day, stop at big towns, exhibit their machines, and lect and expound, so that the local papers took it up. It wo be a splendid thing for manufacturers. He spoke of amate because the general public have an idea that trials are m on a special cycle, and not on a stock machine.

But one of the most fascinating ways of learning geogra was by motor cycling tours. There were different ways touring, as all knew; some people preferred to take a ce and then go about 100 miles and come back to the s hotel. Another way is to start and do everything by r unless you cross the Channel; and for our own country did not think one could have a better three weeks' holi than by taking one of the routes—not the main roads, one of the circuitous routes of probably three times mileage—in order to see the pretty places. It is as wel pick out the pretty spots and make up one's mind to them.

Doing everything by motor is much more fascinating t taking a centre, and it is not a bad plan to do as some go a big distance, say to Moscow, and come back by t If one had three weeks or a month's holiday one might to Siberia and back.

Some people cannot get away in summer, and motor t ing in this country in winter, with its fogs and rain and and snow, is not the most enjoyable form of holiday mak but in a very few hours you can get into real summer twenty-four hours to Marseilles, another twenty-four N Africa. He would show anyone a way of doing that, sh anyone want to get away to North Africa for a mo There the roads were as fine as any in England or Fra The Swiss tour was, of course, a fascinating form of holi and one of the cheapest ways was to motor to the T Bridge and take the General Steam Navigation Co.'s boa Ostend (first-class return ticket 10s. 6d., bicycle ticket 6d.), and motor from Ostend to Belgium; thence to Swi land, touring there for a week, and coming back by a diffe route through France.

With regard to foreign touring, he thought people tour cannot be too careful. Countries judge nations by type of individuals they are accustomed to see.

He would give one little hint with regard to motor tou You must always make some arrangement with a compa where to meet in case you lost one another. He had k parties spoilt by one member taking a wrong road and l sight of his companions for the rest of the holiday. It also essential to make a note of your hotel.

In order to enjoy a motor cycle tour, it is essenti make up one's mind what one intends to do well in ad

* A lecture by Mr. A. Candler delivered before the members of the Auto Cycle Union on Friday, April 10th.

Motor Cycle Touring:—

of the tour. Study the locality, the people's habits, and anticipate the pleasures weeks before hand. Some people boast they do not make up their mind where they will go for a holiday until they get there, and the speaker thought that was courting disaster, especially with regard to a motor tour. Take a camera with you, and you will then have something to look back upon.

Touring Conditions Now and Seven Years Ago.

The facilities for touring now are very different from those of seven years ago when he began. Then one had to carry a little book to know where to buy petrol; places for recharging were two or three hundred miles apart. With the aid of the Auto Cycle Union and the Touring Club de France people need not be afraid of touring abroad or of the formalities attaching thereto. To the question, what is the good of visiting these places on a motor bicycle when one has visited them on an ordinary bicycle? he replied that one method is very different from the other. On a motor bicycle the panorama was different, and on an ordinary bicycle it would be necessary for him to carry half a dozen flannel shirts; on a motor bicycle one arrives at the end of a run fresh and cool and comfortable, even on the hottest day.

The motor cycle press gives valuable information as to tours, etc. It was pleasant on going over a familiar road to have one's memory called back to associations of various kinds. There was hardly a mile on some routes where he had not some association, pleasant or unpleasant, such as that his battery ran out here or his tyre burst there; and these memories are doubly pleasant nowadays, when motor bicycles are so very reliable.

On the point of the £ s. d. of motor cycling, he thought there would be much mixed talk. Roughly speaking, one could run, with decent luck, for ½d. per mile with a 3½ h.p. machine; in other words, enjoy 5,000 miles in a year for a £5 note.

Through the kindness of the Cycle Campers' Association he had some slides to show, illustrating how to enjoy more deeply still the fascinating holiday of touring. With a camping outfit one could tour at a cost of 15s. per week, with all the delightful freedom of open air life.

Before closing his remarks he would refer to the abuse of the sport, to which he was led by having his attention drawn to some motorists who, instead of spending their week-ends touring, race about with open exhaust.

Mr. Candler closed his lecture by reading an extract from Rudyard Kipling, to be found in the "Complete Motorist," by Filson Young, commencing: "But the chief end of my motor," etc.

[For the discussion, see next week's issue.]

FIRST MOTOR CYCLE RACE ON BROOKLANDS TRACK.

To be run on Easter Monday, April 20th.

For motor bicycles of which the engines, if twin-cylinder, do not exceed 80 mm. by 98 mm. for each cylinder. Distance, about five and a half miles.

List of Entrants.

Mr. W. W. Genn.	Mr. E. Kickham.
Mr. W. G. McMinnies.	Mr. J. B. Hanafin.
Mr. Guy Lee-Evans.	Mr. O. C. Godfrey.
Mr. H. Reed.	Mr. A. G. Reynolds.
Mr. W. Pollard.	Mr. O. L. Bickford.
Mr. W. H. Wells.	Mr. C. R. Collier.
Mr. Arthur G. Forster.	Mr. Cory Hurford.
Mr. Edwin Gwynne.	Mr. E. C. W. Fitzherbert.
Mr. W. H. Bashall.	Mr. H. Shanks.
Mr. G. Schink.	Mr. F. W. Applebee.
Mr. F. Toman.	Mr. H. A. Cooper.
Mr. H. A. Collier.	Lieut. J. C. Davis, R.N.

Twenty sovereigns or a cup to the entrant of the winner, at his option. Five sovereigns or a medal to the entrant of the second, at his option.

CLUB NEWS.

Worcestershire M.C.C.

Good Friday run to Stratford-on-Avon, meet 2.30 p.m. Easter Monday, reliability trial. Saturday, 25th inst., run to Malvern.

Falkirk and District M.C.C.

A motor cycle club called the Falkirk and District Motor Cycle Club was formed at Falkirk on the 9th inst. The Rev. Mr. Wright was elected president, Dr. Watt and Mr. Salvesen vice-presidents. Hon. secretary Dr. Shanks, hon. treasurer J. Borland. The club expects to number forty-two members.

Perth and District M.C.C.

The club held a very successful speed guessing competition on Saturday, April 11th, the route being Perth, Methven, Amulree, Dunkeld, Caputh, and Murthly, to Stanley. There were sixteen entrants, of whom thirteen completed the course. Those who finished within time limit in their order of merit were: W. J. Sommerville, J. A. Livingston, and R. S. Shaw (tied), C. Livingston, J. W. Robertson, J. P. Crichton, J. Adamson, G. A. Gibb, and W. G. Pople. The members afterwards had tea in White's Hotel, Stanley, and the whole run was much enjoyed.

Western District M.C. (London).

A most successful smoking concert was held at the Milford Hotel, Hounslow, on Thursday, the 9th inst., by the above club. There was a large attendance of members and their friends and a most enjoyable evening was spent. Some amusement was caused by a humorous programme drawn up by one of the members.

A speed-judging contest was held on the 11th inst., the course being from the thirteenth milestone on the Bath Road to Henley and finish at the Milford Hotel, Hounslow—a distance of forty-eight miles. The competitors had to run in pairs and finish together to qualify for a prize. A showery morning kept many away, and four pairs were dispatched on the journey. All finished close to the time allowed, and the winners proved to be Messrs. N. Hall and F. Ritchie, who were eight and a half minutes out. Heavy rain fell during the run. Members who wish to attend the Brooklands races are requested to meet at the Milford at 10 a.m. on Saturday, the 18th, and Monday, 20th.

The Hull and East Riding A.C.C.

The committee has arranged the opening run to take place on Easter Monday to Bridlington, where the members of the Scarborough Motor Club and the Sheffield and Hallamshire M.C. Clubs will be met at 1.30, and dinner partaken of at the Station Hotel.

Richmond, the venue of the Northern meet of motor cyclists, has also been put on the club's programme for Good Friday, and it is hoped that the attendance at both runs will be satisfactory. An enjoyable time is already assured on both occasions. The times of starting are: Richmond, 5.30 p.m. on Thursday, staying overnight at the Windmill Hotel, York, and 7 a.m. on Good Friday. Bridlington, 9.30 a.m. on Easter Monday, lunch at 1.30.

York will again be visited on Military Sunday, April 26th; dinner at 1.30 at the Windmill Hotel; start from Hull at 8 a.m.

All runs will start from Paragon Square (Soldiers' Monument). The club photograph will be taken before the start on Easter Monday. The committee will gladly welcome any visitors to these meets. The club membership is now 82.

Hampstead C. and M.C.

The opening meet and concert held on the 11th inst. at the Red Lion Hotel, High Barnet, proved a great success, eighty members and friends being present. Mr. C. Homan (captain) presided. An excellent programme was provided, and a most enjoyable evening was spent.

For Easter the club will make its headquarters at Ye Olde King's Head, Ivinghoe, near Tring, and impromptu runs will be held daily. April 25th, meet Tally Ho, Finchley, 4.30 p.m. prompt; destination, Hitchin. Tea at Hunt's Temperance Hotel. Hon. secretary, C. H. Cave, 3, High Street, Highgate, N.

Club News.—

The Burton-on-Trent and District M.C.C.

The opening run will be held on Good Friday, the start being from the headquarters, the George Hotel, at 2 p.m., and the afternoon will be spent at Dovedale. On Easter Monday there will be a run to Buxton, commencing at 10 a.m.

York County M.C.C.

This club is also taking part in the great inter-club run to Richmond on Good Friday, and a run has been arranged to Scarborough (Pavilion Hotel) for the 19th inst; meet City Square, nine o'clock.

Scarborough and District M.C.

On Good Friday the run is to Richmond, North Yorkshire, and on Easter Monday to Bridlington to meet the Hull and East Riding A.C.C. and the Sheffield and Hallamshire M.C.C. Lunch, Station Hotel, at 1.30. On Easter Tuesday afternoon the run is to Helmsley *viâ* Pickering. Tea at the Swan Hotel, Helmsley, at 4.30. A special prize has been promised for the member who heads the list for attending and completing official club runs during 1908.

Coventry M.C.

The Coventry to Holyhead run, which is being organised by the Coventry M.C., will take place on May 30th, starting from Coventry at 7 a.m. Legal limit must not be exceeded, and certificates will be awarded to all competitors who complete the distance in twelve hours. Checkers and marshals will be required at Shrewsbury, Llangollen, Menai, and Holyhead. Will any local motorists, who would be willing to help on that date, kindly communicate with the hon. sec., Mr. E. W. Walford, 18, Hertford Street, Coventry?

A run has been arranged to the Red Lion Hotel, Banbury, for Saturday, April 25th.

Edinburgh M.C.C. (Formerly Dunedin M.C.C.)

At the annual general meeting of the Dunedin M.C.C., it was resolved, in view of the geographical inaccuracy of the name, as well as for other local reasons, to change the title of the club to "The Edinburgh Motor Cycling Club." Mr. Campbell McGregor, 2, Greenhill Place, Edinburgh, was reappointed hon. secretary, with the S.C.U. official, Mr. A. Allan Hay, as his assistant. In view of nothing being settled definitely between the A.C.U. and the S.C.U., it was decided not to affiliate, but to wait till matters are settled at headquarters and then consider the question.

Lancashire M.C.C.

The general monthly meeting of the above club took place on the 2nd inst., Mr. F. H. Wilkinson in the chair. It was decided to alter the maximum engine dimensions of the 2½ h.p. class in the forthcoming hill-climb to 74 × 76 mm. It was also decided to include sidecars in the passenger class. The following new members were proposed and duly elected: J. Riley, G. Harrison, T. Hoghton, — Wilson, H. G. Bee, C. R. Brown, R. Jameson, A. Sykes, and W. Jackson, all of Preston. At the conclusion of the business the Rev. W. J. Sumner read a paper on "The History and Development of the Internal Combustion Engine."

S.E. Auto Cycle Association.

Motor cyclists in the S.E. district are invited to attend a mass meeting that is being called to-morrow (Thursday) evening at eight o'clock at the Green Man Hotel, Southend, on the Sevenoaks Road, when the new S.E. Auto Cycle Association will be formally inaugurated. The new body will especially safeguard the interests of motor cyclists in the S.E. district, and the programme and other interesting matters will be discussed. The nearest rail station to Southend is Beckenham Lane (S.E. and C. Railway), and it is within short walking distance of Catford.

The Liverpool M.C.

The committee has mapped out an Easter tour of about 400 miles, extending over four days (Friday, April 17th, to Monday, April 20th), and comprising some of the most beautiful places and scenery of North Wales. Working on the principle that a club tour should not be a speed event or mileage record, easy day stages of as near as possible ninety miles have been arranged, leaving ample time to enjoy to the fullest extent the great number of exquisitely beautiful spots and places of interest met *en route*. The stopping places for each night will be: Friday, Ludlow; Saturday, Aberystwyth; Sunday, Bettws-y-coed; Monday, Liverpool. Members intending to take part must notify the hon. secretary, E. L. Fehr, 22, Preeson's Row, Liverpool, at once.

Dublin and District M.C.C.

On Good Friday members meet at Steam Tram Station, Terenure, for run *viâ* Blessington to Baltinglass, at 11 a.m. On Saturday, April 18th, start from Donnybrook Bridge at 3 p.m., for three days' tour to Waterford and back. Members not going to Waterford will accompany the tourists as far as Ashford, Co. Wicklow. Monday, April 20th, meet at Gough Monument, Phœnix Park, at 11 a.m., for run to Navan and Kells.

Newcastle and District M.C.C.

For the opening run to Richmond on Good Friday, members will meet at Coach and Horses Inn, between Low Fell and Birthy 9 a.m. On Saturday, April 25th, there will be a slow hill-climb on Benton Bank, Armstrong Bridge, Newcastle. Three classes will be included—First, for single-geared machines (minimum gear 6 to 1); second, variable gears; third, passenger machines. Entry fee, 1s. Start at 3 p.m. No pedalling allowed.

Cheltenham and District M.C.C.

At a general meeting held on Thursday last, it was unanimously decided to affiliate to the A.C.U. conditionally that the A.C.U. accept all responsibility of cancelling the old No. 2 agreement.

The opening run will be held on Good Friday; meet at the Lansdown at 11 a.m. Tea at the Belle Vue Hotel, Malvern. All motor cyclists are cordially invited.

A speed-judging competiton will be held early in May.

Motor cyclists desirous of joining should write to the hon. secretary, Mr. H. A. Cooke, 274, High Street, Cheltenham.

Cambridgeshire M.C.C.

The opening run is fixed for Good Friday to the Hardwicke Arms, Arrington (on the old North Road), where a photograph will be taken. Meet at headquarters at 9.30 a.m.

The following fixtures have also been arranged: April 23rd headquarters, at three o'clock, for Chequers, Royston; April 25th, headquarters, at three o'clock, for Swan, Linton; April 26th, Victoria Bridge, at 10 a.m., for Bell, Ely; April 30th headquarters, at three o'clock, for George, Huntingdon; May 3rd, Stone Bridge, at 10 a.m., for Saffron Walden.

The secretary, Mr. C. W. Wilson, 38, Victoria Park, Chesterton, Cambs., will be glad to receive the names of any motor cyclists wishing to join the above club.

Essex M.C.

A tour has been arranged for the Easter holidays, the venue being Southsea. Members will meet at 10.30 on Friday morning at Putney Bridge (Surrey side), and will then travel to Southsea, where the headquarters for the tour will be Miller's Hotel. Runs will be arranged to the surrounding places of interest. Mr. G. E. Revill will have charge of the tour, and will be pleased to receive suggestions from members taking part. Will those who intend to join please communicate with the captain, Mr. O. L. Summers, Southernhay, Loughton, Essex, so that accommodation can be booked. For those who are unable to get away before Saturday, a late party has arranged to travel down in the afternoon. It is hoped that a large number of members will endeavour to join, as a very enjoyable and interesting time is looked forward to.

Dundee and District M.C.C.

The following office bearers were appointed at the recent annual general meeting of the club: James S. Greig, president; vice-president, W. M. MacLean; captain, D. C. Forrester; vice-captain, W. S. Yeaman; secretary and treasurer, J. D. Cruickshank, 27, Albert Street, Dundee; members of committee, Messrs. G. D. Macdougald, G. Norrie, J. M. Ferrier, J. R. Hendry, E. D. Scott, and A. Bellefontaine. A hearty vote of thanks was passed to Mr. G. D. Macdougald, the retiring president, for the great assistance he had given the club and the able way he had carried out the duties of his office during the past year.

The opening run will take place on April 27th (spring holiday), starting from the headquarters of the club (Messrs. Maxwell, Son, and Co.'s Garage, St. Andrew Street), at ten o'clock, proceeding by Arbroath and Montrose to Brechin, where lunch will be arranged for two o'clock, at the Commercial Hotel. After lunch a photograph will be taken. The route home will be by Kirriemuir and Forfar. All motor cyclists are cordially invited to join in the run. Those intending to do so might notify the secretary not later than the 23rd inst., so that final arrangements may be made for lunch

The Motor Cycling Club Rules for the Inter-Club Team Trial, 1908, for "The Motor Cycle" 50 Guineas Challenge Cup, under A.C.U. Rules, Saturday, June 27th.

RULES.

This cup is a challenge trophy, entitled *The Motor Cycle* Challenge Cup, of which the Motor Cycling Club, Ltd., trustees and administrators.

It is to be the award in a competition between teams riders, members of, and nominated by, recognised automobile clubs, motor cycling clubs, or cycling clubs. In case of dispute as to whether any entrant is or is not a "recognised" club, the editor of *The Motor Cycle* shall adjudicate. No club may enter more than one team.

If the cup be won three times, not necessarily in succession, by the team representing any one club, it shall become the absolute property of that club.

Each team shall consist of six riders, of whom

(a) Four shall drive single-seated motor cycles.

(b) Two at least of the four single-seated motor cycles must be motor bicycles.

(c) Two shall drive a two-seated motor cycle, motor cycle with passenger attachment, such as tricar or sidecar, quadcar, or bicycle and trailer. A passenger must be carried, who shall not leave his seat during any part of the competition, and the joint weight of driver and passenger must not be less than 18 stones.

The competition shall consist of a 100 miles non-stop run—two stages of 25 miles out and home—with a lunch interval of one hour after fifty miles.

The number of miles, up to 100, accomplished by each rider of each team without stoppage other than during the lunch interval, or stoppages due to the exigencies of traffic, or a dismount at the end of the outward journey for the purpose of turning the machine, will be added together, and the team scoring the highest mileage thus arrived at shall be the winner. Unavoidable stoppages due to traffic must be reported, and will not count against the rider. No adjustments are permissible during any such stop.

No adjustments of any kind may be made during the lunch interval. No oiling or replenishments will be permitted during this interval.

A period of not less than one hour and twenty minutes, not more than one hour and thirty minutes must be occupied over each section of twenty-five miles; transgression of this rule will disqualify the rider from scoring on that section. These times apply to the distance as given on the map and route card, which distance must be taken as correct for the purpose of this competition.

The competition will take place on Saturday, June 27th, starting at 10 a.m.

The entry fee shall be two guineas per team.

Clubs must send an entry form, duly filled in, together with the entrance fee, to Mr. J. Van Hooydonk, assistant trials-hon. sec., the Motor Cycling Club, Ltd., "Spring Villa," North Finchley, N., on or before June 20th.

The judges shall be three in number, one nominated by the donors, one by the Motor Cycling Club, Ltd., and one by the Auto Cycle Union. None of these shall be a member of any competing club, and their decision shall be absolute and without appeal.

In the case of a tie between two or more teams the contest shall be decided in the following manner:

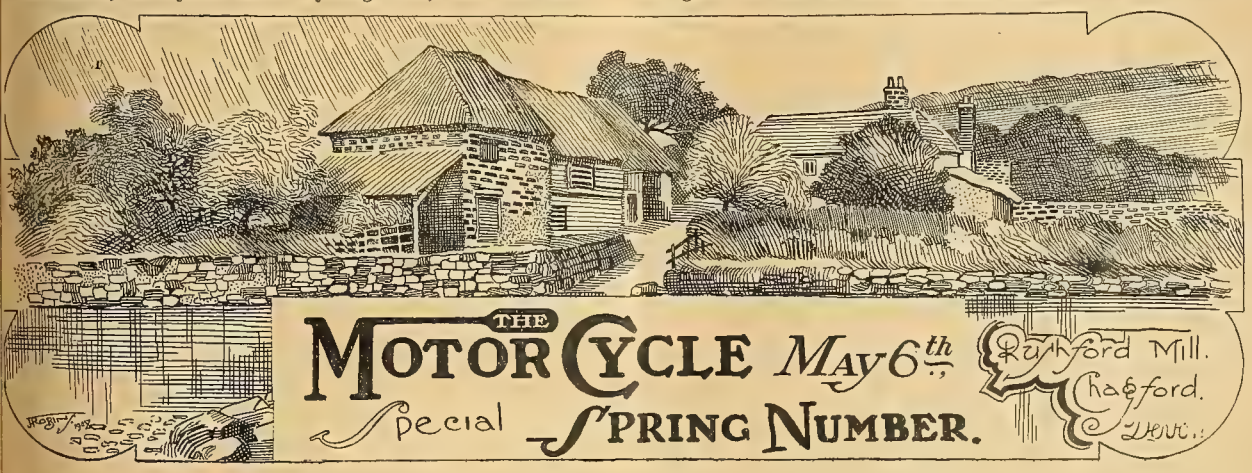
After an interval of one hour from the conclusion of the hundred miles—during which time no adjustments or alterations shall be made—the competitors who have finished this distance and are declared qualified under the rules, shall proceed to a fairly level stretch of road not far from the original starting point. On this an out and home course of approximately half a mile each way will be chosen, and marshals shall be placed at every 220 yards. At each such point, and at the turn, the road wheels of the machine must be brought to a complete stop and then re-started. At each stopping place the machine must be stopped between two lines drawn across the road ten yards apart, and so soon as the road wheels are at rest to the satisfaction of the marshal, the competitor may immediately restart and proceed to the next stopping place. The time will be taken from the word "Go" at the starting point, which will be the signal for the rider to start his engine, and the moment the machine returns to that point. The team whose six combined times amount to least shall win.

The committee reserve the right to refuse any entry.

Should it be deemed advisable in the interest of the competition, these regulations may be revised or added to by the Committee of the Motor Cycling Club, Ltd.

The Motor Cycling Club, Ltd., shall not be held liable for any damages caused accidentally or otherwise to the competitors' machines whilst in charge of the officials of the Club.

We recently had an excellent opportunity for a test of the new Shamrock-Gloria rubber studded tyres, a pair having been sent us by the Hanover Rubber Co., 29-31, Old Street, E.C. The covers have been on one of our machines for about three weeks, during which time the distance travelled, excluding the test runs carried out by the makers of the machine, is 306 miles. Most of this has been on partly dry roads, but recently the roads in Derbyshire were extremely heavy and greasy, and every motor cyclist who has ridden in the neighbourhood of Ashbourne will agree that, although not of the slimiest description, the roads in that district require a fair amount of care to enable corners to be negotiated with safety when the surface is wet. Well, the Shamrock-Glorias stood the test beautifully. We never had a moment's fear of side-slip, whether on greasy macadam or the tramlines of Derbyshire's county town. We are not surprised to hear from the makers that the new tyres are "going well." The wear on the rubber studs is, of course, not noticeable in such a short distance, but if looks count for anything, the studs are good for two to three thousand miles.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addresssed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C. and should be accompanied by the writer's full name and addres

Cleaning Out Carburetters.

[3239.]—*Re* your Wiltshire correspondent's letter as to the contents of his carburetter (?), did he mean his household dustbin or the ordinary motor cycle carburetter? as I should like to be quite clear on the matter. R. SURRIDGE.

The Prevention of Punctures.

[3240.]—I was very much interested in seeing Mr. Anderson's letter [No. 3183] in *The Motor Cycle* of March 18th *re* the prevention of punctures. I have had a similar experience during the two years I have ridden a motor cycle, and could never account for it, except that it was good luck. I have only had one puncture in the rear wheel and none in the front one. I always ride with a leather flap fixed to the mudguard of front wheel, which just touches the ground when the machine is at a standstill, and when in motion clears the ground by about a quarter of an inch.

Perhaps some more of your readers could give their experiences with a flap fitted in the above manner.

STAOCTLAS.

[The tip is strongly advocated by experienced cyclists, and there is no doubt it prevents punctures to some extent.—ED.]

The Future of Motor Cycling.

[3241.]—Were it not for the tone adopted by Mr. W. H. Wells in his letter, I would not worry your readers with a reply, for it can be of but little interest whether Mr. Wells agrees with my views or not. The statement that someone possibly may take me seriously is uncalled for, and should not have been made by one in Mr. Wells's position. I have frequently in your pages expressed my ideas on motor cycle matters in general, and always has this been with a belief that I was doing something to further the movement, or giving someone the benefit of a long experience. In many cases I have had the pleasure of receiving thanks from those who have profited by my advice. I have seen many letters from Mr. Wells, but I cannot recall to mind a single instance in which he has even attempted to help the movement in general.

To take Mr. Wells's letter, in the first place he accuses me of "expressing my opinion very frequently of late in *The Motor Cycle* in regard to the relative merits of light and heavy machines." This is entirely incorrect. The fact is that at Mr. Bell's lecture at the A.C.U. I took part in the discussion. *The Motor Cycle* questioned a statement of mine, and I replied to the criticism, but outside this not in a single instance, for the last year at any rate, have I written on the subject of light *v.* heavy weight.

Secondly, Mr. Wells thinks that having not been an active rider of the two-wheeler for some time, I am not in a position to have any ideas on the matter. As is well known, I am constantly out on the road with motor cyclists, and can at least form my own opinion as to the types of machines on which they appear to be most happy. According to Mr. Wells's ideas, those responsible for the Licensing Bill should spend their time in public-houses!

Thirdly, Mr. Wells does not think I am qualified to express an unbiassed opinion. My only reply to this is that in favouring the lightweight I am favouring a type of machine which my company is not manufacturing, and in these circumstances it is difficult to see how I can be biassed, whereas Mr. Wells is responsible for the selling of a heavy-weight machine, and loses not a single opportunity, so far as I can see, to tell us what a good thing he is on.

J. VAN HOOYDONK.

Two-speed Gears and Free Engine Clutches.

[3242.]—Having used a two-speed gear for over one th sand miles, in all weathers, with a sidecar, may I add following summary to the gear discussion?

DISADVANTAGES.

1. Low gears are very noisy.
2. The free engine, if kept going too long, overheats machine.
3. They are expensive.
4. They do away with the healthful exercise of run alongside the machine and hard pedalling, which restore circulation in winter.
5. They annoy owners of cars by passing them on s hills.
6. They cause undue wear on the machine by inducing to go out on muddy roads when otherwise it would be not to ride.
7. They cause fat old gentlemen, who ought to b better, to career about on motor cycles. There is one suc the district weighing over twenty stones, who strolls ar on a 4 h.p. Roc looking the picture of unblushing enjoyn
8. They promote the pernicious sport of motor cyclir a terrible extent.
9. They sometimes require oiling and adjusting.
10.—They take away all excuse for detaching your si from the bicycle. People find out what a gear means want to come too.

ADVANTAGES.

Nil.

MOHUN A. TRENCHAR

Lessons from the Lewisham A.C. Hill Climb.

[3243.]—As an interested spectator of the hill-climb Cudham, one feels constrained to offer the management h congratulations on the way the event was carried throug spite of police opposition at the last moment.

As a sportsman, one hopes that a similar method to employed on Saturday, the 4th inst., may become the and not the exception, namely, that competitors are not of venue till, say, an hour or two before the climb takes

As a believer in the future of the lightweight, one disappointed in the number of entrants in this class. results, however, were interesting, and personally I was struck with the performance of the 2½ h.p. Fairy, whicl the only machine to take the hill without hard peda The rider, however, appeared to be somewhat nervous a have upset his mixture, as shortly after the event he me coming up at a much higher speed and without th of pedals. I for one am pleased to see English ma coming to the front, as I consider the foreign machines had it too much their own way in this class heretofore.

There are two points which appear to be of great in to the sport, namely, that in future events stress shou laid on the fact that machines must be standard touring in every respect (no special carburetter or other device) that the amount of pedalling should be taken into accou the final placing of the machines, as the general public to know the actual merits of the machine, not the behind the pedal.

If these points were attended to these events would be more in the spirit of the old sporting days, where man had a fair chance. J. ASHMO

The Balancing of Petrol Engines.

[3244.]—I was much interested in the letter of "Shazzik" on the above subject in *The Motor Cycle*. Might I ask him to send you a diagram with position of drilled holes, size, and number in each flywheel? Also what method he uses in testing the balance. Perhaps he would also give us experience and advice on preventing the blowing out of oil at the pulley bearing? While I have the engine down could he advise drilling, say, an ⅛in. hole up the spindle to relieve pressure in crank chamber? KERRY.

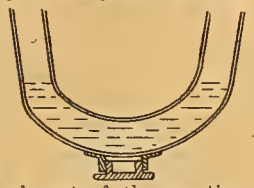
Low Petrol Consumption.

[3245.]—I ride a little old Peugeot with a surface carburetter, and as I am fast drawing towards the sere and yellow, have a forecarriage attachment minus the seat. On Wednesday week I had a journey of seventeen and a half miles each way, and road conditions and weather being favourable, I was not altogether surprised to find the machine running all the way with the throttle nearly closed. Before starting I put one quart of Carless into a perfectly empty tank, and, on arriving home I drew therefrom a pint, less about a sixth. This works out at about thirty miles to the pint, or 240 to the gallon. If this is not a record it cannot be far behind.

E 123.

Exclusion of Dust.

[3246.]—I agree with the conclusions of your engineering friend and yourself as to the difficulty of satisfactorily excluding dust by means of gauze. But I have an idea that the problem might be attacked by drawing the fixed air supply through a U tube with a water tap, and the extra air through a long intake tube lined with a removable flannel sleeve soaked in, say, glycerine and water.



In nature, the filtration of dust particles in the air is provided for by hairs in the nostrils. My idea is to imitate this somewhat. Of course, absolutely perfect filtration is out of the question. Our long-suffering lungs (as well as carburetters and cylinders) are full of dust, especially behind a big car on a summer day, but perhaps something might be done on the lines above indicated. I mention glycerine because it would remain moist (just the opposite of ether), and would arrest the fine particles somewhat, as in nature. Of course, the existing balance of the carburetter would be altogether upset, and my suggestions may be impracticable, but such as they are I venture to lay them before you. OLD COLONIST.

Handle-bar Control.

[3247.]—Your correspondent, Mr. Mohun A. Trenchard, in his amusing narration of his numerical progression in h.p. in your issue of 25th March, bemoans his inability to secure, among other improvements, handle-bar control, owing, as he puts it, to "fortunate lack of funds."

We would like to point out, however, that handle-bar control, if fitted in the first instance, involves little, if any, additional expense, and practically every up-to-date motor cycle builder now offers this very essential improvement as part of the standard specification.

There are hardly two opinions nowadays about the overwhelming advantages of handle-bar control, and we would recommend your readers to take an opportunity, before placing their orders, of inspecting some of the best systems, such as those of the Aston Motor Accessories Company, Messrs. Brown and Barlow, and that supplied by ourselves, or to examine some high-class machine so fitted, such as the Triumph. On going into figures when selecting the mount will probably be found that handle-bar control is no dearer and an less efficient systems.

We find that many of the smaller makers endeavour to dissuade buyers from adopting handle-bar control; the reason being, we believe, that such makers are ignorant of the ease with which it may be fitted when building the machine. If buyers would only insist upon having what they want in such cases they would benefit themselves and do the maker a good turn by making him keep abreast of the times.

E. M. BOWDEN'S PATENTS SYNDICATE, LTD.

Two-speed Gears and Free Engine Clutches.

[3248.]—I am one of the large number of motor cyclists who desire to buy a powerful twin motor cycle for use with sidecar and real touring. From five years of motor cycling in hilly districts in Wales, Derbyshire, Lake District, etc., I know that no single-geared machine can give satisfaction for such work, especially when the passenger is a lady, whom one does not take out for a tour and then ask her to help to push a heavy machine up some very steep road, which, on account of its right-angle or hairpin bends, the machine cannot surmount.

I, therefore, amongst many others, am anxiously looking for the public trials of standard makes of heavy twins fitted with two-speed gears, and I was exceedingly pleased to see that A. W. Wall, Ltd., are offering their machine and gear for such a searching test, viz., descending a hill like Birdlip partly, and at one of the steepest portions turn round with engine running, and then reascend the hill. Such work is sometimes required of motors whilst on tour, where hairpin bends are numerous, and I sincerely hope that Mr. Wall's very brave offer will be accepted by the A.C.U., and that at the next hill-climb a class for passenger machines with two-speed gears may be arranged. If necessary, makers of such gears should be specially invited to take part, and asked to put their gears through such a test. The only thing I wish to very specially emphasise is that the tests be carried out with passenger, *i.e.*, not with solo machines, which latter, if well handled, could perform such a feat even on a flexible single-geared machine. E. KORBER.

The Motor Cyclists' Ideal.

[3249.]—*Re* letter [3206] from "A Prospective Buyer." This correspondent does not state what price he would call a fair one for his ideal machine. Personally, I do not understand why the motor cycle firms do not try and cater for the different wants of the prospective buyer, and the prices asked in the different advertisements seem to be veritable armour plates, placed to effectually stop ordinary buyers from anything but a second-hand crock. Now I am not a motor manufacturer, but possess sufficient plant to turn out motors. The question then remains, Would this writer accept a machine built by me if it were to come up to his specification? Why ask the Rex Co. to do all the work in the world? Up to the present time they have always made heavy machines—that is, in my opinion. I should call a light one, say, under 60 lbs.

Why not try something like the following? No pedals, magneto, low saddle, variable gear, automatic carburetter, narrow tanks, spring forks, cycle roadster tyres, low engine power, wind screens for efficient cooling—or instead of variable gear have Mabon free-engine clutch; weight under 70 lbs., say 65. How would this suit at £25? (Engine about 2½ h.p.)

WASHINGTON LOWE.

[3250.]—There will never be a machine designed to suit all classes of riders, and I believe this fact is already well recognised by the trade.

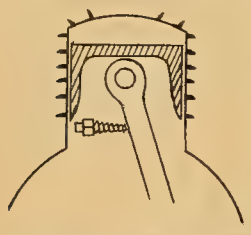
No doubt, a machine of about 3 h.p. with an efficient two-speed gear and weighing not more than, say, 110 lbs., price £30 to £35, would appeal to thousands of riders; but we shall have to wait some years before such a machine can be produced.

I belong to that large and growing class—referred to by "Ixion"—of rider who, having tasted the joy and comfort of driving a well tuned twin, will never go back to the single-cylinder again. Further, it has now been conclusively proved that for sidecar work a twin is an absolute necessity; that is, for touring purposes. Personally, I find it requires more energy to push and start my single-cylinder 3 h.p. mount than my twin heavyweight, with free engine. In fact, during the past year I have never been fatigued in the least handling a machine over 200 lbs. weight.

I should imagine that any machine under 100 lbs. in weight would be a most uncomfortable mount for touring purposes, even if capable of taking most hills, as on rough roads the vibration would be felt very much more than on a heavyweight. When we have reached perfection I think the "ideal" motor cycle will have four cylinders, ensuring a slow running engine, and, consequently, no wear of parts, noiseless, vibrationless, pedalless, two-speed gear, and the weight may probably be cut down to 160 lbs. H. GIBSON.

Experiences with Gudgeon Pin Set Screws.

[3251.]—The strange experience with gudgeon pin set-screw described by "Ixion" is remarkable, to say the least of it.



He does not tell us which side of the cylinder the pin came out of. If the front, the explanation, I think, is simple. The piston had just gone down on explosion stroke, and the gudgeon pin screw must have just dropped out as the piston came up again. When the piston reached the top on exhaust, the connecting rod swung across and the pin was trapped in a horizontal position between the wall of the cylinder and the connecting rod. This would have quite sufficient force to drive it through the wall of the cylinder. I append a rough sketch to show my meaning. I shall be interested to know what "Ixion" thinks of this explanation. When mine dropped it took the complete top of the crank chamber with it.

A. F. PAYNE.

The A.C.U. Annual Council Meeting.

[5352.]—In reading the report of the above, I was particularly struck by the lack of judgment evinced in the selection of the committee. I see there were twenty-three clubs nominated for representation, of which three had of necessity to be rejected. On referring to the *Journal* and the M.U. report, wherein is given a list of clubs and membership affiliated under the standard agreement No. 2, I see that of the three rejected clubs one has a membership which is only exceeded by three other clubs, and another of the rejected clubs has a greater membership than seven clubs which are to be represented. Then, again, of the twenty elected clubs, there are five which are not quoted in the *Journal* or M.U. report, and are presumably clubs recently affiliated.

Is it reasonable to expect clubs with a fairly large membership to be governed by the small clubs, or the older affiliated clubs by those newly affiliated?

I observe from the report in the *R.A.C. Journal* a question was raised as to a member of the A.C.U. committee being on the sub-committee formed by the M.U. for the purpose of enquiring into the position of motor cyclists, but a *club* which has signed the new Motor Union agreement has been elected for representation on the committee of the Auto Cycle Union.

H. W. BEECH.

Running on Petrol and Paraffin in Burmah.

[3253.]—I have been trying paraffin and petrol (one of the former and seven of the latter) on a Rex with surface carburetter, and I find that the results are not worth the trouble. The machine ran all right when at a certain heat, but if worked hard caused preignition through points of plug becoming too hot. I have run three miles all out and then switched off, and the bicycle has travelled merrily until the exhaust valve was raised. I could never open the air lever at all with this mixture, whereas with Pratt's petrol only I open it halfway to start, and with Shell petrol threequarters open and hardly any throttle on at all, and when the machine is well under way the air can be turned full on, and no more throttle required.

In conclusion, I think that the paraffin and petrol could be used on a cooler pattern of engine *i.e.*, water-cooled or with a good fan, and that extra power would be obtained. With surface carburetter it is difficult to keep mixture correct, as it does not vaporise so well as petrol, and, therefore, is not suitable for this kind of machine.

C. A. HOLLAND
(Artillery Sergeant).
Burmah.

Motor Cycle Actual Weights.

[3254.]—With reference to a letter by "Road Sweeper" in a recent issue, I am glad to see his remarks on the subject of actual weights. I recently purchased a new 5 h.p. twin by one of the best makers with the firm's own belt-driven two-speed gear. This two-speed model is listed in your Buyers' Guide at 204 lbs. What portion of the machine this refers to I do not know. Its actual riding weight, from the mean of two careful tests on different weighing machines, is 270 lbs. This includes lamp, horn, luggage carrier, toolbag with a few spares, some petrol and oil, a total of 20 lbs., all of which, except the Goodrich bands and lamp, it is absolutely necessary to carry everywhere.

The consequent advantage gained over a well-known 3½ h.p. weighing 170 lbs. with 10 stone rider is only 6.5 lbs. per horse-power in favour of the twin, and this is probably absorbed by the slight extra friction due to the two-speed gear. The actual gain is an ability to climb perhaps half a dozen hills in England, which I do not live anywhere near, with the aid of the two-speed gear, and, on the other hand, I carry about 100 lbs. extra, with its attendant disadvantages and expense.

My idea in getting the twin was that it would make a practically go anywhere machine with sidecar and passenger, but so far as I can judge from a few trials in this easy country, I have gained nothing in this direction except the two-speed gear, which has to be called into play on hills which the 3½ h.p. single-geared used to take the sidecar up pretty easily.

From Mr. A. G. Lee's interesting formulæ, I gather that against a wind velocity of fifteen miles per hour (this is in nautical language a fresh breeze) the combination, weighing 612 lbs. and expressing an area of 13 sq. ft., would require 4.98 h.p. to travel on the level at fifteen miles per hour.

In practice the engine will not give this horse-power continuously, and it cannot be got out of the engine at the number of revolutions per minute which this speed represents on a gear of, say, 5½ to 1, so really it means the low gear on the level under these conditions, and a hill of anything over 1 in 12 will probably stop you even on the low gear against this fresh breeze. It looks as if the combination were little better than some sailing boats I have met, and will only make a passage with a fair wind.

STEAM ROLLER.

The Selection of Gear Ratio and Other Items.

[3255.]—I have been reading with intense interest the articles by Mr. A. G. Lee on "The Selection of Gear Ratios," and so have, I doubt not, every other motor cyclist (and very likely car driver) who has ever climbed a hill.

The publication of articles like the afore-mentioned ("Be Efficiencies," "Hints and Tips," etc.), technical though the look, are far more interesting than accounts of travels, stories and so on, and they make the paper *(The Motor Cycle)* what is called a "live" paper.

There is one thing Mr. Lee has not worked out, and which I would like to see, although a good idea may be got by studying diagrams figs. 4 and 5 together. It is this. What would be the final speed of a variable pulley having, say, a dozen speeds (or gear ratios) which may be dropped step by step to meet the load obtaining at any particular part of the gradient, keeping the engine revolutions constant? It is a sure thing that it would be higher than shown in fig 4, and the average speed considerably so. The curve would probably be represented by a line sloping from thirty miles at 0 yards to twenty-five miles at 500 yards.

With regard to the curious accident of a gudgeon set-screw being pushed through cylinder wall, my theory is this, that it was pushed through by connecting rod. If there is a splash plate on top of the crankcase the screw would drop down on to it and through vibration would lodge in slot for connecting rod. On down stroke angularity of rod would jam against the cylinder wall, and increasing angularity of rod as the stroke proceeded would exert a powerful push, the flywheels supplying the power. If the correspondents on the subject will examine the edges of the connecting rod they will probably find a dent in it.

As to fixing of gudgeon pin, has the dodge ever been tried of drilling to centre of gudgeon pin and tapping through lug and pin? If the set-screw is taper pointed a little longer than usual, it will bring the gudgeon hole to register (supposing the parts were being reassembled after having been taken down) and would enter all right. The pressure on the point of set-screw, first on one side and then the other, which tends to make it work out would act as a lock on the threaded parts of the set-screw in the lug and pin respectively.

K 873.

[We believe the above described method of fitting gudgeon pin screws has been used. "K 873" may be correct in his surmise regarding the curious accident; see Mr. A. Payne's letter and sketch published on this page.—Ed.]

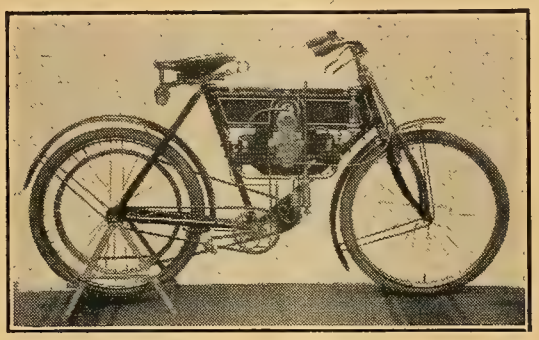
LEWISHAM A.C. OPEN HILL CLIMB.

"The STAR performance was undoubtedly that of the lightweight

'FAIRY,'

which sailed up with a few touches of the pedals."—"The Motor."

ORDER WITHOUT DELAY.



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THE BELT THAT GRIPS.

The Watawata has a tenacity of grip to which other motor cycle belts are strangers.

That means power economy.

The Watawata is constructed solely of leather, and on scientific principles.

That means durability.

The Watawata is made in such a way as to render stretching or giving almost impossible.

That means a saving in trouble.

The Watawata is potent in the prevention of power wastage, so that the force of your engine is always rightly and fully directed.

That's why every motor cyclist can achieve better results with the Watawata, and why every reader of these words should test it.

A BOOKLET TO INTEREST EVERY MOTOR CYCLIST IS SENT ON APPLICATION TO O. & W. ORMEROD, Ltd., Dept. B, ROCHDALE.

LONDON: W. B. BROOKE, 318, KING STREET, HAMMER-SMITH, W.

Watawata

In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

MISCELLANEOUS ADVERTISEMENTS.

IMPORTANT NOTICE

Owing to the Holidays, Advertisements for our issue of the 22nd inst. must reach Coventry not later than first post on Thursday, 16th inst., to ensure insertion.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. ooo, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given, c/o *The Motor Cycle*, 20, Tudor St., E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

MOTOR BICYCLES FOR SALE.

HALIFAX Motor Exchange.—Careful consideration of the following will be to your advantage: Why live in this miserable world and potter along on that thumping, perspiring, overheating, and overworked single-cylinder, when you can get a fine twin Rex (a maker's triumph and the result of many years' experience), with long low frame, long bars, spring forks, and good tyres, in fact, a gentleman amongst paupers in most company, for the modest sum of £22, or we allow you a liberal sum for your old mount in part payment. Note the liberal terms of exchange; £16 for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex.—Halifax.

HALIFAX.—2¾ h.p. Minerva, mechanical valves, 26 wheels, 2¼ tyres, perfect order and condition; £14 10s.

HALIFAX.—3½ h.p. Minerva, spray, girder forks, 26 by 2¼ Clincher A Won, begging at £16 10s.

HALIFAX.—Fine 3½ h.p. Rex, long bars, low saddle, good climber; £11 10s., bargain.

HALIFAX.—Genuine Twin Rex, £22, guaranteed, spring forks, low built, goes like a flash; £16 given for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex in part payment.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection. Open Easter Holidays.

week is HERE!

Stocks are very low everywhere. The Premier Motor Agency—largest dealers outside London—can supply most **Leading Makes** (even one or two Triumphs) **FROM STOCK.** You should write or wire **AT ONCE** for one of the models below:

NEW.

REX, 1908, 3½ h.p. De Luxe, two-speed magneto	£52 10
TRIUMPH, 1908, 3½ h.p. magneto, 26in. wheels	48 0
TRIUMPH, 1907, 3½ h.p. magneto, 26in. wheels	40 0
N.S.U., 1908, 6 h.p. twin magneto, 26in. wheels	54 0
N.S.U., 1908, 3¾ h.p. magneto, 26in. wheels	43 0
N.S.U., 1908, 3½ h.p. magneto, 26in. wheels	40 0
N.S.U., 1908, 3½ h.p. magneto, 24in. wheels	40 0
N.S.U., 1907, 3½ h.p. accumulator, 26in. wheels	35 0
N.S.U., 1908, 1¾ h.p. lightweight magneto, 26in. wheels	34 0
REX, 1908, 5½ h.p. De Luxe. two-speed magneto	57 15
REX, 1908, 5 h.p. Twin Tourist magneto	42 0
REX, 1908, 3½ h.p. Tourist, magneto	36 15
REX, 1908, 2¾ h.p. Featherweight, magneto	26 5
F.N., 1908, 4½ h.p. four-cylinder, magneto	50 0
F.N., 1908, 1¾ h.p. Lightweight	35 0
MOTOSACOCHE, 1908, 1¾ h.p. accumulator	30 0
MOTOSACOCHE, 1908, 1¾ h.p. magneto	33 0
BROWN, 1908, 3½ h.p.	37 0
ROC, 1908, 4 h.p. magneto, Royal	50 0

SOILED ONLY.

N.S.U., 1907, 3½ h.p. accumulator	£30 0
ROC, 1908, 4 h.p., 1908, magneto	40 0
REX, 1908, 3½ h.p. magneto de luxe, two-speed	35 0

SECOND-HAND.

N.S.U., 1907, 3½ h.p. Roc clutch and gear	£35 0
ROC, 5 h.p. magneto, Roc clutch	32 0
TRIUMPH, 1907, 3½ h.p. magneto	35 0
TRIUMPH, 1906, 3 h.p. magneto	24 0
N.S.U., 1907, 3½ h.p. magneto, free engine	24 0
N.S.U., 1907, 3½ h.p. magneto, Roc two-speed	30 0
N.S.U., 1907, 3 h.p.	15 0
VINDEC SPECIAL, 1907, 5 h.p. Truffault, and two-speed	35 0
VINDEC SPECIAL, 1906, 5 h.p. Truffault	27 0
NORTON, 1907, 5 h.p. spring forks, magneto	30 0
SINGER, 3½ h.p. Magneto, new condition	22 0
MINERVA, 1907, 4½ h.p. spring forks, mag.	22 0
F.N., 1906, 3½ h.p. spring forks, magneto	16 0
KERRY, 1906, 3½ h.p.	8 0
ARIEL, 1906, 3½ h.p.	9 10
REX, 1907, 5 h.p., nearly new, spring forks	19 0
REX, 1907, 5 h.p. spring forks	17 10
ROC, 1906, 5 h.p. magneto	30 0
EXCELSIOR, 2¾ h.p.	8 0
BRADBURY, 3½ h.p.	8 0
MINERVA, 2 h.p., perfect condition for the road	9 0
QUADRANT, 3 h.p.	9 10
WHITLEY, 3½ h.p.	10 0

We are Sole Manufacturers of the WARWICK MOTOR BICYCLE with TWO-SPEED GEAR and ROC (licensed) INTERNAL EXPANDING CLUTCH. It starts like a car, and embodies every perfection of design. See illustration on half page advt. elsewhere in this issue.

EASTER EQUIPMENT.

The PREMIER SEARCHLIGHT.
The PREMIER ROAD CLEARER.
The PREMIER TUBULAR STANDS and CARRIERS.
The PREMIER ACCUMULATOR, Price, 10 amp., 10/6. „ 20 „ 12/6.

SENT PER RETURN FROM STOCK.

Booklet, "On the Choice of a Motor Cycle," also "Motor Cycles of 1908," and "Everything for the Motor Cyclist," sent FREE.

We give FREE ADVICE on all matters relating to motor cycling.

The PREMIER MOTOR AGENCY
Aston Road, BIRMINGHAM.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Holds the finest and largest stock of second-hand cycles in the world. 300 to select from. All machines are despatched in running order, with charged and guaranteed accumulators.

HALIFAX.—45s. deposit and six monthly payments of 29s. 6d. secures 2¾ h.p. Excelsior, 2¾ h.p. Humber, 3 h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 3 h.p. Automotor, 3½ h.p. Rex, 2½ h.p. Aurora, 2¾ h.p. Stevens, 3 h.p. M.M.C.; all guaranteed running order.

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, light and low; £23 10s.

HALIFAX.—4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—3½ h.p. light low Rex, spring forks, 26in. wheels, Longuemare; £12 17s. 6d.; snap this.

HALIFAX.—2 h.p. Humber, spray, trembler, chain drive, splendid climber; cheap, £9 10s.

HALIFAX.—Fine 3½ h.p. Rex, spray, adjustable pulley, very smart and good; £11 10s., tyres excellent.

HALIFAX.—3 h.p. Rover, 26 by 2¼ Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

HALIFAX.—3½ h.p. Bat, spring frame, long bars, low saddle, 26 by 2¼ Dunlops, Watawata; £20.

HALIFAX.—3 h.p. Bat, two speeds, very smart, good machine, nearly new; bargain, £20.

HALIFAX.—3½ h.p. Phelon and Moore, two speeds, special low frame, spring forks, new non-skid; £30.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 100 miles non-stop; £13 10s.

HALIFAX.—3½ h.p. Rex, spring forks, vertical engine, spray, special finish; £14 10s.

HALIFAX.—Brand new 2¾ h.p. Bat, Peugeot engine, 26 wheels, unridden, and perfect; £25.

HALIFAX.—3½ h.p. 1907 Rex, magneto, Crypto two-speed gear and Montgomery flexible sidecar; complete, £23 15s.; without sidecar, £24.

HALIFAX.—1906 3½ h.p. Rex, specially good condition, 26 by 2¼ Clinchers; £16 5s.

HALIFAX.—5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £27 10s.; bargain.

HALIFAX.—3½ h.p. Simms, vertical engine, magneto ignition, easy starter, reliable; £17 10s.

HALIFAX.—Fine twin Rex, Greenwood's Leeds-London record holder, registered, guaranteed; £22 10s.

HALIFAX.—Special 7 h.p. Peugeot, twin-cylinder, nearly new, a regular flier; £30.

HALIFAX.—3 h.p. Givaudan, late model, spray, almost new, perfect every way; £15.

HALIFAX.—3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £16 10s., perfect order.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 100 miles non-stop; £13 10s.

HALIFAX.—3 h.p. Hobart, vertical, spray carburetter, trembler coil, splendid condition; £12 10s.

HALIFAX Motor Exchange.—Extended payments, exchanges; high-class machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection. Open Easter Holidays.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—4½ h.p. twin Minerva, 2½in. tyres, standard; £23.

MAUDE'S.—Rex, 1907 model, blue finish, 5 h.p., splendid condition; £21.

MAUDE'S.—Rex de Luxe, Roc free engine, in new condition throughout; £27.

MAUDE'S.—Rex, 6 h.p., 2½in. Model de Course, Continentals, cantilever seat; £21.

MAUDE'S.—7-8 h.p. Minerva, 1908 model, very little used, spring forks; £38 10s.

MAUDE'S.—Rex, 3½ h.p., spring forks, spray, trembler, 1906 model, a beauty; £14.

MAUDE'S.—Rex, 1905, low built, spray, 26in. wheels; £12.

MAUDE'S.—1907 3½ h.p. Rex, magneto, in perfect condition; £19 19s.

MAUDE'S.—Rex, 1904, Phœnix two-speed gear, suit sidecar; £11.

MAUDE'S.—Rex, 3½ h.p., in very good condition; £9.

MAUDE'S.—Rex frame, Automotor engine, front wheel minus tyre, wants slight additions and alterations; sacrifice £4 15s. lowest; a bargain for anyone who can tinker a machine up.

MAUDE'S.—2¾ h.p. Minerva, new rear tyre, vertical, thoroughly overhauled and enamelled; £12.

MAUDE'S.—2¼ h.p. F.N., 26in. wheels, Palmer tyres; £10.

MAUDE'S.—Clarendon, 3 h.p. vertical engine, beautifully enamelled in green; £10.

MAUDE'S.—2¼ h.p. Minerva, in good running order throughout; £6.

MAUDE'S.—Kerry, 2¼ h.p., 26in. wheels, long handle-bars, spring forks, spray carburetter, Duco belt; £12.

MAUDE'S.—Fafnir, 3 h.p., 26in. wheels, long handle-bars, low built; £12.

MAUDE'S. — Centaur, 3½ h.p., vertical, B100 saddle, low built, free engine, 26in. wheels; £15.

MAUDE'S.—Minerva, 2½ h.p., spray carburetter, very good tyres; £10.

MAUDE'S.—3½ h.p. Rover, vertical, free engine, 26in. wheels, just the thing for a sidecar; £20.

MAUDE'S.—Whitley, 3 h.p., spray, very good general condition and order; £10.

MAUDE'S.—Ariel, 3 h.p., 26in. wheels, vertical engine, M.O.V., splendid puller; £14.

MAUDE'S. — Jap, 2½ h.p. engine, like new, £8; Cunard, 3½ h.p., £10.

MAUDE'S.—Quadrant, 2 h.p., £6; Antoine, 2 h.p., £5.

MAUDE'S. — 3 h.p. Quadrant, spray, good tyres; £10.

MAUDE'S.—2 h.p. Minerva, M.O.V., in lovely condition; £7.

MAUDE'S.—Fafnir, 2½ h.p.; £10.

MAUDE'S. — Ariel lightweight, 26in. wheels, 2½ h.p.; £10.

MAUDE'S.—Bayliss, 3½ h.p., £10; splendid puller.

MAUDE'S. — Noble, 3 h.p., spray, 26in. wheels, low built, perfect order; £10.

MAUDE'S.—De Dion, vertical, 2¾ h.p., long handle-bars, spray carburetter; £10.

MAUDE S.—Singer, 2 h.p., magneto, non-skid to rear; £8.

MAUDE'S.—The machines listed below are ideal lightweights, and can be recommended for solo work.

MAUDE'S.—1¾ h.p. Garrard, new front tyre, spray carburetter, coil and accumulator ignition; £4 10s.

MAUDE'S.—2 h.p. Ormonde, belt drive, spray carburetter, very good puller; £6.

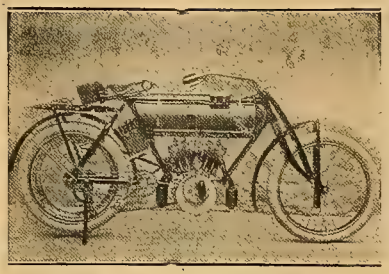
MAUDE'S. — 2¼ h.p. Ariel lightweight, 26in. wheels, low built, very good puller; £6.

SOME SAY
'WE LEAD; OTHERS FOLLOW'

But a trial is without a doubt the most convincing

Definite quotations given per return of post.

SPECIAL QUOTATIONS FOR NEW



MINERVAS.	**QUADRANTS.**
MOTO-REVES.	**ROCS.**
ARIELS.	**PHŒNIX.**
TRIUMPHS.	**F.N.'s.**
BATS.	**L.M.C.'s.**

Etc., etc.

TRICARS.

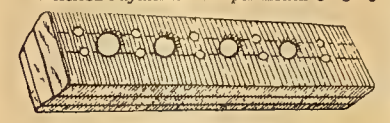
GARRARD Tricar, three-speed, water-cooled	£30	0	0
RILEY, 4½ h.p., two-speed, water-cooled	35	0	0
REX Triette, 6 h.p., twin-cylinder	28	0	0
HUMBER Tricar, chain drive	15	0	0
REXETTE, 8-10 h.p., open frame, two speeds, water-cooled, seat two, wheel steering	40	0	0
Lovely Sidecar, 28in. wheel, tyres as new	4	10	0

CARS.

GOBRON-BRILLIE, 16 h.p., equal wheels, very fast	£100	0	0
Motor Cycle, Tricar, or Small Car part.			
OLDSMOBILE, like new, 5 h.p.	£36	0	0

ACCESSORIES.

Osborne Free Engine	£1	7	6
Salsbury Car Headlights, pair	5	0	0
¾in. Leather Belting, per foot	0	0	6½
Lightweight Engine, 1½ h.p.	2	0	0
Twin Trembler Coil	0	12	6
"Star" Porcelain Plugs	0	1	0
Charging Plant (large)	4	0	0
Steering Wheel, dished	0	7	6
Shop-soiled Continental Cover, 28×2¼in.	1	0	0
Plated Seat-pillars	0	1	0
Trailer, with wicker box, suit tradesman, new tyres	2	0	0
Premier Searchlight, brand new	1	2	6
Second-hand Horns	0	2	0
Wright's Footrests	0	7	6
Footrests, fit '06 Rex	0	5	0
Footrests, fit N.S.U.	0	5	0
Frame with wheels	0	15	0
Vim Stands	0	6	0
Brooks's B100 Saddles, your old one and	0	7	6
Pair Long Handle-bars	0	3	6
Trembler coil, perfect, brand new	0	11	0
8ft. 6in. Dermatine 1in. Belt (new)	0	12	0
Three Arc Lamps, each	0	10	0
A Quantity of Push Cycles to be sold on Deferred Payments per month	0	5	0



"ALBANY" BELTING.

Latest principle and design.

⅝in. 7d., ¾in. 8d., ⅞in. 9d., 1in. 10d., 1¼in. 1/1 per foot.

CONTINENTAL TYRES.

26×2in.	24/3	28×2in.	25/6
26×2¼in.	28/9	28×2¼in.	30/-
26×2½in.	33/-	28×2½in.	35/3

3/- allowed on old covers, and 1/6 on old tubes in part payment.

Immediate delivery guaranteed.

Maude's Motor Mart,
POWELL STREET, HALIFAX

(behind the Victoria Hall).

Telephone 433.

GOOD MOTOR CYCLES WANTED FOR CASH.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—1¾ h.p. Minerva, spray, good tyres, guaranteed running order; your cycle and £4 4s.

MAUDE'S.—2 h.p. Zedel, newly painted engine, and everything perfect, weight 80 lbs., 26in. wheels, very low built; £12.

MAUDE'S.—2 h.p. Minerva, M.O.V., spray carburetter, good tyres; £6.

MAUDE'S.—To prove that our second-hand motor cycles are intended for road usage, write for our terms for road delivery, and you will be a buyer.

MAUDE'S Motor Mart, Powell Street, Halifax. Behind the Victoria Hall. Sole agents for Minerva motors. Nat. tel., 433 day.

1¾ h.p. Minerva, perfect throughout, excellent compression, long bars, Clincher tyres, no cuts; trial willingly; ready now; bargain, £5 10s.—114, Rutland Street, Stepney, E.

TWIN Sarolea, 4 h.p., special Chater frame, footboards, Palmers, genuine machine; £20; part exchange lower power; no dealers. — E.G.B., 23, Wharf Road, Islington.

3½ h.p. Motor Cycle, Falcon engine, Longuemare, 2¼ Palmers, perfectly new, genuine forfeited deposit; bargain, 13 guineas.—Webb, pawnbroker, 191, High Road, Tottennam, N.

2¾ h.p. Minerva, new condition, spring forks, low, fast, exhaust cut-out, absolutely reliable, £16; new ¾in. Watawata belt, with fastener, 13s.—15, Atherton Road, Forest Gate.

1½ h.p. F.N., spray, brass petrol tank, Peter-Union tyres, low, in good order, £5 5s., or offers; two-cylinder trembler coil, new, 25s.—J. Smith, 122, Creek Road, Deptford, S.E.

J.A.P. Powerful 3½ h.p. Cycle and Sidecar, thorough going order, guaranteed, tyres practically new; bought car reason of selling; 22 guineas.—Wm. Archard, White Waltham, Maidenhead.

POWERFUL 3½ h.p., low position, torpedo, outside flywheel, light, starts at walking pace, rubber footboards, electric headlight, everything of best, spares; £16, or offer.—Seen, 375, Edgware Road, W.

3½ h.p. Brown, Clincher tyres, accumulator, Watawata belt, horn, lamp, carrier, Price's stand, spares, tools, etc., grand machine, splendid condition; £22; photo sent.—Phillips, Queen's Road, Chorley.

6 h.p. Riley Engine, two speeds, Chater-Lea frame, just been thoroughly overhauled, tyres in good condition, studded band on the back; a bargain; trial by appointment. — 121, Downham Road, Kingsland, London.

4 h.p. Chater-Lea-Antoine, two speeds, free engine, starting handle, with Montgomery sidecar, two accumulators, Fuller Syntonic, new tyres, lamps, etc., excellent condition; £25. — Motorist, 3, Mount Park Crescent, Ealing, W.

3½ h.p. 1907 Quadrant, magneto, new condition, spring forks, Brooks B105, Watawata, Clinchers, stand and carrier, complete, carefully garaged during winter; £22 10s.—F. Barber, "Ferry View," Bourne End, Bucks.

1¼ h.p. Clement-Garrard Lightweight, spring forks, suit lady or gent, belt driven, ridden 200 miles; £15, or close offer; take good gent's push bicycle, as new, and cash adjustment; bargain. — Motorist, 85, Oxford Avenue, Southampton.

6 h.p. Twin Bat, 1907, spring frame, very low, magneto in tank, new last May, hardly ridden this winter, Lucas horn and lamp, Giant Watawata, new Brooks non-skid, everything in excellent condition; owner going in for car; what offers?—Campion Garage, Market Place, Loughborough.

EDINBURGH. — Alexander's Motor Exchange, 110, Lothian Road. Immediate delivery from stock latest 1908 models. Quadrant, Rex, Vindec, Minerva, Moto Reve, Ariel, Griffon, N.S.U. Buy now and secure a mount for Easter. Soon it will be too late. Liberal allowance for your old machine. Nat. tel., 5020.

MOTOR BICYCLES FOR SALE.

FAIRY, 2½-3 h.p., as new; £16.—Tyler, Earl's Colne, Essex.

3 h.p. Chase; £15; reliable.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

4 h.p. Bat, specially built, faultless; £20, cost £63.—Legge, Noah's Ark, Derby.

£6.—Humber, 2¾ h.p., good going order, tyres good.—18, Hailsham Avenue, Streatham.

1907 3½ h.p. Triumph, magneto ignition, excellent condition; £32, or near offer.—Below.

3½ h.p. Motor Bicycle, Minerva engine, low frame, long bars and back position, just built; £30.—Below.

2¾ h.p. Hulbert - Bramley, Minerva engine, excellent condition; must be sold; £15.—Below.

1905 3½ h.p. Rex, accumulators, ignition, good working order; what offers? —Below.

2¾ h.p. Motor Bicycle, Brown engine, low frame, just built, quite new; bargain, £25.—Below.

2 h.p. Phœnix, in good working order; £8.—The Hulbert-Bramley Motor Co., 96, Upper Richmond Road, Putney.

F.N., Palmer cord tyres, good condition; cheap.—A., 24, Fulham Road, S.W.

3½ h.p. Rex, free engine, Palmer tyres; £9 15s.—Seen at The Garage, Muswell Hill, N.

4 h.p. Zenith Bicar, free engine clutch, luggage carrier, very good running order; £17 10s.—Below.

ZENITH Bicar, 3 h.p., two-speed gear, re-enamelled and overhauled, in splendid condition; £27.—Zenith Motors, Ltd., 101a, Stroud Green Road, N.

REX, 3¾ h.p., spring forks, as new, faultless; expert trial; £18 18s.—53, Belmont Street, Kentish Town.

TOM WOODMAN'S 1907 Twin Vindec Special, £35; soiled 1907 Triumph, £40.—Woodman's, Peterborough.

3 h.p. Bat, M.M.C. engine, De Dion carburetter, very smart; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

MINERVA, 2 h.p., in perfect condition, splendid mount; 10 guineas.—Davaar, 97, Thornlaw Road, West Norwood.

3½ h.p. 1907 Triumph, in condition like new; price, lowest £34 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

3½ h.p. White and Poppe, genuine Swift, perfect; £16 10s.—H., "Westwood," Broad Lane, Hampton, Middlesex.

3 h.p. Minerva, low frame, 26in. wheels; £17 10s.; first-class machine.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

2 h.p. Triumph, Minerva, in perfect condition, good tyres, two belts; £7 10s., or cycle part.—46, Rectory Lane, Tooting.

2¾ h.p. Minerva, Chater-Lea, tandem attachment, carrier; £12 10s.—Clarke, Ballure House, New Moston, Manchester.

3½ h.p. Celerapede, Chater frame, Minerva engine, Clinchers, good condition; 10 guineas.—Sandilands, Pulborough.

BARGAIN.—3 h.p. Westfield, Chater-Lea, F.N., new tyre; any trial; £10. —1a, Frideswide Place, Kentish Town, N.W.

3 h.p. Fafnir Bicycle, Chater-Lea, Whittle belt, £16; Roc bicycle, Kelecom engine, free engine clutch, £9.—Lacey, Staines.

£14.—3 h.p. Simms engine, on Chater-Lea, magneto (Simms-Bosch), Clincher tyres.—F.H., 7, Credenhill Street, Streatham.

4 h.p. Twin Magneto N.S.U., brand new; what offers? modern single part payment.—Motorist, 21, Stirling Road, Edgbaston, Birmingham.

MINERVA, Chater - Lea, powerful, smart, well tuned mount, just spent £4 on overhaul; bear expert examination; rare bargain, £15; regret must sell; photograph and particulars. — Box 9,658, *The Motor Cycle* Offices, Coventry.

WITH EDGED TOOLS

Prompt delivery of all REX and N.S.U. 1908 models. Any machine taken in exchange at a liberal allowance. Cut our quotation before dealing, or you'll regret it. Our requirements of second-hand machines enable us to quote prices

CUT TO DEATH.

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1908 2½ h.p. REX Featherweight, magneto	26 5
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1908 5 h.p. REX Tourist, magneto	42 0
1908 5 h.p. REX DE LUXE, magneto	52 10
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3½ h.p. N.S.U., magneto	22 10
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3 h.p. QUADRANT, spring forks, spray	13 0
3½ h.p. 1906 REX, spring forks, tyres good	15 10
3½ h.p. KERRY, vertical, spring forks	16 10
3½ h.p. MINERVA, spring forks, M.O.V.	17 10
2¾ h.p. MINERVA, spring forks, M.O.V.	14 10
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3½ h.p. MINERVA, 26×2¼in. Clinchers	16 10
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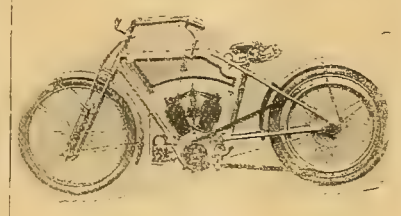

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WERNER, two cylinders, 3½ h.p. motor cycle, perfect condition throughout; £14 14s.—B., 4, Yeoman's Row, Brompton Road, London.

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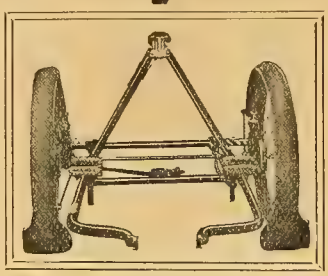

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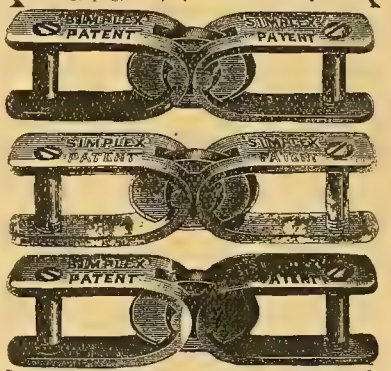

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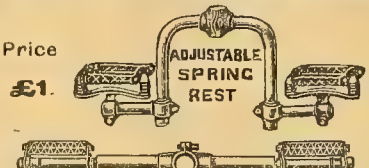

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GRIFFONS, the marvellous hill-climbers, all models in stock; exchanges entertained.—Sole Agents, Rex, 5, Heath Street Motor Works, Hampstead.

2¼ h.p. Ormonde, Kelecom engine, Longuemare, Palmers (unpunctured), spares; photo for stamp; £7 15s.—P. Guy, 8, Burghley Road, Kentish Town.

LIGHTWEIGHT, 2¾ h.p. Jap, perfect running order and condition, tyres, Clincher A Won, unpunctured; £12. — 8, Howard, 35, Friar Street, Worcester.

2½ h.p. Kerry, Clincher tyres, spring girder forks, non-trembler, Longuemare, in good running order; £10. — Belsten, 303, Stapleton Road, Bristol.

3½ h.p. Humber Motor Cycle, chain drive, first-class running order; will accept £9 for quick sale.—To be seen at Harris's, Albert Road, Belvedere.

TRIUMPH, 1907, 3½ h.p., magneto, perfect, gold medal 1,000 miles trial, just overhauled by Triumph Co.; £33.—W.D., 17, Colonnade, Russell Square, W.C.

ANTOINE, 4 h.p., new condition, Dunlops, studded, low built, Chater, Shamrock-Gloria belt, powerful machine; £15.—Powell, 27, Tredegar Road, Bow, E.

BARGAIN. — Motor cycle, Clincher A Won tyres, 2¾ h.p., Coventry made, in going order; £11, or nearest offer.—Parker, 5, Fleet Street, Bishop Auckland, Durham.

2¾ h.p. Minerva, new cylinder and piston, re-bushed, new Dermatine, spring forks and seat-pillar; £11; perfectly reliable.—Shirley, Holmbush Road, Putney.

2½ h.p. Chater-Lea, Longuemare, M. and B. switch, Bowden back and front brakes, perfect condition and splendid running order; £6 10s.—128, High Road, Tottenham.

TRIUMPH, 3½ h.p., 1907, standard, magneto, in good condition, tyres good, heavy tread on rear cover; what offers? Lancashire.—No. 9,674, *The Motor Cycle* Offices, Coventry.

3½ h.p. Excelsior, in splendid going condition, nearly new, long handlebars, low frame; can be tried; £16; to view any time. — 9a, The Promenade, Seven Kings, Essex.

5 h.p. Trafalgar, Antoine engine, spring forks, splendid condition, £22; 2½ h.p. Durkopp, spring forks, spray, trembler, good order, £10.—11, Avenue Road, Goldhawk Road, W.

SALFORD.—3½ h.p. Minerva, genuine, picked engine, equal to new, only ridden 500 miles; nearest offer to £20 accepted; guaranteed perfect order.—132, Cross Lane, Salford.

2½ h.p. Chater-Lea-Jap, done 500, Palmers, F.N., Nilmelior, Watawata, low, long bars, good climber; £12 12s. cash.—C. Goring, 38, James Street, Oxford Street, London, W.

2¾ h.p. Genuine Minerva throughout, very reliable; expert examination invited; bought new Triumph; bargain, £12 10s.; evening after seven.—5, Navarino Road, Hackney, London.

TRICARS FOR SALE.

RILEY Tricar, 4½ h.p., water-cooled, two speeds, coach-built, perfect order; bargain; must sell; £25, or nearest offer. — Brice, Brigstock Road, Thornton Heath.

1907 Twin Rexette Tricar, 5-6 h.p., air-cooled, belt drive, accumulator ignition, first-class condition; £25, or exchange for good cycle.—Woodbridge, 260, Lozells Road, Aston.

3½ h.p. Humber Tricar, perfect going order, £16; new Rex Tourist 35 guinea model motor cycle, just delivered by makers; what offers? — C. Masters, Raunds, Northants.

4½ h.p. Aster Engine Tricar, Chater-Lea frame, Bozier two-speed, water-cooled head, chain drive, wicker body; quick sale, £25.—3, Glendower Place, South Kensington.

3 h.p. Rex, fitted with Phelon and Moore two-speed gear (nearly new), and Phœnix Trimo with forecarriage, new back tyre, 2¼in. Clincher; £20.—Grace and Sutcliffe, Keighley.

4½ h.p. Water-cooled Humber Tricar, coach-built body, free engine, two speeds, chain drive, car tyres, good condition; photo; £17.—Bowen, Greatheed Road, Leamington.

5½ h.p. Light Tricar, twin-cylinder, two speeds, Palmer tyres, 2½ cord on back, magneto, extra mudguards, pump, tools, horn; £29.—Clark, George Street, Hyde, Isle of Wight.

LAGONDA Tricar, 10-12 h.p., water-cooled engine, three speeds, very fast on hills, excellent condition, all accessories; any trial; price £65.—The Western Motor Agency, Sidcup, S.E.

4½ h.p. Humber Tricar, latest pattern, two-speed, free engine, water-cooled, car tyre back, front tyres new, first-class condition; 30 guineas.—Oakden, Cheapside, Lancaster.

6½ h.p. Riley Tricar, new last May, non-skid back wheel, lamps, horn, and tools, running perfectly, three speeds, reverse; £65. — Hobdey, Blackfriars Street, Manchester.

5-6 h.p. Rexette, little used, coach-built, hardly scratched, £30 worth fittings, improvements, tyres, spares, tyres nearly new back, 700 by 85, water-cooled; £33.—27, Seaborn Road, Morecambe.

REXETTE, 5½ h.p., two-speed and free engine, wheel steering, in splendid order, just re-enamelled, new tyres and inner tube; £32, or near offer. — Smith, 47, St. George's Avenue, Birkenhead.

READY for Easter.—3½-4½ h.p. Tricar, Kent three-speed, Minerva, Mills-Fulford, Clincher and Continental tyres, splendid condition; trial on steep hill; £27.—159, Queen's Road, Dalston, N.E.

6 h.p. Rexette, spring frame, water-cooled, two speeds, wheel steering, studded rear tyre, coach-built front and rear seats, with side lamps, equal to new; only £40.—Telegraph Motor Co., Hanley, Staffs.

6 h.p. Westfield Tricar, open frame, bucket seat, coach-built body, wheel steering, three-speed gear, horn, head and tail lights, ample spares; £32.—Zenith Motors, Ltd., 101a, Stroud Green Road, N.

OPEN Frame Tricar, 4½ h.p. Stevens engine, two-speed gear, water-cooled, coach-built, wheel steering, new Dunlop car tyre on back wheel; genuine bargain for holidays; £25.—Owen, Fruiterer, Oakengates.

4½ h.p. Twin Givaudan-Crownfield, excellent condition, new Whitsuntide, 1907, Clinchers (unpunctured), Stanley belt, Longuemare, spares, upholstered basket; trial given; £31; exchange modern low 2¾ or 3½ h.p. bicycle and cash.—Ulto, 10, Harold Road, Leytonstone.

STAMFORD HILL.—5 h.p. w.c. Oppermann three-speed tricar, overhauled, plated, and enamelled like new, £35; 4½ h.p. two-speed Phœnix Trimo, overhauled, plated, and enamelled like new, £32 10s.; 4½ h.p. Kelecom, £22; 3½ h.p. M.M.C., £10; 3½ h.p. Rex, Millford front, £15; all bargains and guaranteed; trials.—128, High Road, Tottenham.

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TRICAR, 3½ h.p. Kerry, two-speed, free engine, chain drive, fan-cooled, Plater's art cane seat, splendid hill-climber, in thorough good condition; price £30.—Lee, 80, Rectory Road, Fulham, S.W.

EXTRAORDINARY Bargain!—Powerful 8-10 h.p. Rexette, seats three, twin, water-cooled, two-speed, wheel steering, with all accessories, climb anything with three passengers; lowest price £45.—Foyle, 135, Charing Cross Road, London, W.C.

TRUMP 9 h.p. Tricar, water-cooled, three speeds and reverse, Chater-Lea fittings, sprung throughout, new August last, perfect throughout; price 70 guineas.—E.A.C. 167, Victoria Street, Westminster.

1907 Wolf Tricar, good as new, 8 h.p. twin, three speeds, climb anything, double front seat, in excellent condition, Lucas lamps, spares; bargain, £60, cost £120; any trial given.—Beach, Beaconsfield Road, Dover.

REX Triette 1907 light tricar, 5½ h.p., twin-cylinder, as new, perfect order throughout, fully equipped with spare valves, accumulators, belts, tools, etc.; photo; trial; £27.—Lloyd, Victoria Terrace, Leamington.

NEARLY New, 3½ h.p. Raleighette, not run 600 miles, open frame, water-cooled, two speeds, best light tricar ever produced; cost £97, sacrifice £40; motor cycle taken part payment.—R. Else, Leawood, near Matlock.

5-6 h.p. Humber Tricar, two speeds, water-cooled, chain driven, upholstered back and front, radiators, lamps, generator, footboards, splendid condition; £40, or offers, open exchange.—91, Stanhope Gardens, Harringay.

5-6 h.p. Open Frame Tricar, Chater-Lea, two-speed, rubber footboards, new cover and tubes; £30, or offer; exchange Mabley car or two-cylinder Daimler, suitable for station work; cash adjustment.—Apply, Ship, Upstreet.

RILEY Tricar, 1907, 9 h.p., condition as new, recently overhauled by maker, extra large tyres, Autoclipse headlight and generator, all accessories, tools, and spare parts; £75 cash.—Ringwood, 24, The Broadway, Hammersmith.

HUMBER Tricar, new, only run few miles, cost £75, must sell, £30; also 4½ h.p. De Dion licensed car, new condition, bargain, £35; Palmer corded cover, new, 28 by 2½, 30s.; 28 by 2½, £1.—Wingfield, 112, New King's Road, Fulham.

TRICAR, 4½ h.p. De Dion engine, Oppermann three-speed and clutch, Palmer cord car tyre (700 by 75) back wheel, coach-built front, beautifully upholstered and sprung, climb anything, and very fast; £33.—Frank Almgill, Yeadon, Leeds

4½ h.p. Twin Precep Tricar, Mills-Fulford, coach-built aluminium body, good order, overhauled last summer, extra wheel, numerous spares, new Duco Flex belt; cash offers; appointment.—Rose Villa, Court Road, Sutton, Surrey.

8 h.p. Twin-cylinder Water-cooled Rexette Tricar, two-speed, twin back wheel, seat for two in front, perfect order and condition, just ridden from the North of England to London; £48; any severe trial.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

6-7 h.p. Twin-cylinder water-cooled Fafnir Tricar, open frame, wheel steering, bucket seats, in thoroughly good condition; full particulars and photo on application; price £45, or good motor bicycle taken in part payment.—Taylor, Thames Side, Chertsey.

5-6 h.p. Humber Tricar, water-cooled, wheel steering, coach-built seats, beautifully upholstered, two speeds, free engine, Palmers to front, large studded car tyre to back, machine throughout like new; £40, or exchange.—The Leeds Motor Exchange, 28, Dock Street.

REXETTE, 5½ h.p., two speeds, water-cooled, wheel steering, open frame, splendidly sprung, fast and luxurious, climbs anything, in perfect running order, tyres good, many improvements; expert examination invited; best offer over £30.—Dr. Parkhurst, Brackley.

TRICARS FOR SALE.

7-9 h.p. Peugeot Twin, two-speed, bucket seat, wheel steering, new non-skid on back, front just fitted, new accumulator, acetylene lamps, attractive appearance, fast and powerful, in perfect running order; £35.—Smart, Star Hotel, Alnwick.

4¼ h.p. Phœnix, two-speed gear and free engine, a reliable tricar of the light class, footboards, lamp, horn, tools, Brooks B100 saddle, ready for any severe test; price, very lowest, £24 10s.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

5½ h.p. Twin-cylinder Rex Triette, spring back and front, non-skid back wheel, footboards, four-speed gear and free engine, in capital condition, and fast, two powerful brakes, upholstering and general condition like new; £25 10s.—Garaged at Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

6 h.p. Singer Tricar, twin-cylinder, water-cooled, wheel steering, coach-built, two speeds, first-class running order, new heavy car tyres, tools, horn, pump, jack, accumulator, and spares; £50 cash; owner bought four-seater.—Dentist, 25, Manchester Street, Heywood.

PHŒNIX Tricar, 6 h.p., coach-built, open frame, two speeds, very little used, looks like new, £45, or nearest offer, would take twin motor cycle part payment; also brass acetylene headlight, 12s.—Roberts, 10, Grove Place, Hampstead, N.W.

6 h.p. 1907 Singer, three speeds and reverse, extra wide front seat, sold through no fault; must have the cash, but owner would accept £10 and 1908 Triumph; cash, to clear, £46, cost £146. —Apply, any time, Hurlock, jun., 70, Walworth Road, S.E. 'Phone, 14942 Central.

9 h.p. De Dion Tricar w.c., two speeds, Hans Renold's silent chains, wheel steering, Longuemare, car tyres, N.S. back (all as new), very reliable; expert examination invited; genuine bargain, trial, £45, or nearest offer for quick sale. —6, Greyswood Street, Mitcham Lane, Streatham, S.W.

5 h.p. Two-cylinder Tricar, Sarolea engine, sprung frame, coach-built, wheel steering, three speeds, non-skid back wheel, splendid machine, powerful and fast, £29; light forecarriage, less seat and springs, practically new, make motor bike into nice light trike, bargain, £4 10s.—Spark Motor Works, Pentonville Road, King's Cross.

REXETTE, 5 h.p., two speeds, water-cooled, wheel steering, specially built driving wheel, Michelin car tyre, new spare tube for same, Palmer fronts, with spares, special tool box, controlling switch on wheel, two Ducellier oil lamps, one acetylene headlight, lot of accessories, good condition; £35.—Holt, Forest View, Barrowford, Lancashire.

SIDECARS AND FORECARS.

FORECAR, Mills-Fulford, 26in. wheels, adjustable stays.—315, Wick Road, Hackney.

MONTGOMERY Sidecar, condition as new; £3 15s.—43, Stavordale Road, Drayton Park, Highbury.

SEVERAL Side and Forecars, cheap. Send requirements, or 1d. stamp for list.—Farrar, Square Road, Halifax.

MOTOR Sidecar, guaranteed climb 1 in 5 two up, De Dion, two speeds; photo; £32 10s.—Slaughter, Weston-super-Mare.

SIDECAR, Liberty, fit any frame, cane, upholstered red, 26in. Dunlop, unscratched; £4 15s.—174, High Street, Stoke Newington.

SIDECAR, splendid condition, fit any frame, 26in. Dunlop motor tyre; sacrifice £4 15s.—T. Judd, 123, Holloway Road, London, N.

SIDECAR, Montgomery, in excellent condition, 26 by 2¼ wheels; £5.—Hulbert-Bramley Motor Co., 96, Upper Richmond Road, Putney.

CHATER-LEA Tricycle Attachment, Continental tyres, footboards, foot-brakes, complete, new; £7 15s., or near offer.—24, Southgate Road, London, N.

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MILLS-FULFORD Sidecar, nearly new; £5.—Sands, High Road, Woodford.

NEW Sidecar, fit any machine; £4 17s 6d.—205, Queen's Road, Dalston.

SIDECAR, rigid fixing, 26in. Clincher, nearly new; £5 10s.—31, Landor Road, Stockwell.

MONTGOMERY Sidecar, good condition, 28in. wheel, upholstered red; £4 15s.—Vowler, 10, Camden Avenue, Feltham.

MONTGOMERY Sidecar, coach-built, flexible joints, 28in. wheel, left side; £7.—Netherton, Parkside Gardens, Wimbledon.

MONTGOMERY Sidecar, right or left, 26in. Palmer tyre.—96, Upper Richmond Road, Putney.

SIDECAR, rigid fixing, adjustable every way, very comfortable, smart finish, new condition; £5 5s.—99, Benthal Road, Stoke Newington.

MILLS and Fulford Duplex Steering Sidecar, only run few miles; £6, or really good trailer and cash.—486, Coventry Road, Birmingham.

MONTGOMERY Sidecar, with latest non-skid attachment, excellent condition, wicker and cane; £7, or near offer, 26in.—Frank Moss, Mansfield.

LATEST Montgomery Sidecar, first quality, exactly equal to new; accept £7 10s.; exchange Remington Brief typewriter, or Sunbeam cycle.—76, Station Road, Old Hill.

FOR Sale, 1908 sidecars, ready for Easter, double leaf springs, 26in. motor tyre, will fit any machine; £4 18s. 6d.; see testimonials from satisfied riders. —Jennings, 268, Hornsey Road, Holloway.

CONTRACTA Folding Sidecars, for all motor cycles.—We are full up for Easter, but call and see us. A blow to the space difficulty. Nearly new trailer for sale, £3.—Shapland and Co., Ewell, Surrey.

HANDSOME Montgomery Sidecar, coach-built aluminium body, dark green, upholstered to match, flexible joints, fit either side, 26in. wheel; £7. —Seen at Warriner's Garage, Micklegate Bar, York.

FORECAR, 4½ h.p. Stevens engine, two-speed gear and clutch, tyres in good condition, guaranteed in running order, chain drive; lowest cash price £28, a bargain.—Apply, E.G., 51, Chingford Road, Walthamstow.

MONTGOMERY Sidecar, art cane, 26in. wheel, fitted to 3½ h.p. White and Poppe, Chater-Lea, guaranteed best throughout, ready for immediate tour; £28, or sell separate.—Letters first, Motor, 2, Spencer Park, S.W.

5 h.p. Single Sidecar, spring forks, 2½in. tyres all round, good condition, low built, spares, guaranteed perfect; any trial; expert examination invited; £26, or near offer, genuine bargain.—15, Emery Street, Walsall.

SIDECAR, rigid, very fine condition, cane seat, nicely upholstered, £5 15s.; also a Duplex steering Mills and Fulford sidecar, £5 15s.; forecar attachment, good order, £5; £16 16s.; Mills and Fulford coach-built governess trailer, good order, £5.—Wauchope's, 9, Shoe Lane, London.

STAMFORD HILL. — Marvellous value. Our famous sidecars have double leaf springs, frames brazed and stove enamelled, full sized and well upholstered bodies. We will send on approval, and leave you to judge. None better, whatever you pay. Our price £4 18s. 6d., complete; can deliver from stock; please order early.—128, High Road, Tottenham.

EASTER is now on us, but we have a limited number of sidecars we can supply from stock. Come and have one fitted for £5. Points to remember: Ours are attached in two minutes, the lowest built, thereby ensuring safety. Seven years' guarantee. We are the inventors and originators of the sidecar. Established 1890. We have a reputation to keep up.—Oakleigh Motors, Ltd., West Dulwich.

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ANGELUS Piano Player, for tricar (water-cooled), or 1907 motor cycle. —45, Parade, Leamington.

4½ h.p. Tricar for Pianola, or small cabinet and sideboard.—34, Blantyre Road, Sefton Park, Liverpool.

F.N., four-cylinder, 200 miles, garaged London, for 1¾ h.p. geared F.N., or 2¾ h.p.; cash.—Watson, 51, Windmill Road, Luton.

HUMBER Tricar, 3½ h.p., free engine, Dunlop tyres; £15; wanted, good motor bike. — 111, Humberstone Road, Leicester.

CHATER-LEA Frame, suit 2¾ h.p., inclined, for 3½ h.p. M.O.V. Minerva cylinder.—Langford, 215, Algernon Road, Lewisham.

EXCHANGE for Vindec or Roc, with two-speed gear, a Rexette tricar, in splendid condition.—K., 26a, Morningside Drive, Edinburgh.

CAMERA, quarter-plate Lancaster Instantograph, cost £2 2s., two double dark slides, etc.; wanted, Fullers 16 amp. accumulator, lamp, etc.—Pascoe, Borough Green, Kent.

EXCHANGE, New Playetta Player Piano and rolls, cost £103, for Triumph, Phelon and Moore, or other good make and cash.—Harrison, 31, Pasture Road, Goole.

CHASSIS for Runabout, only wants finishing, no engine or tyres; will take a 2 h.p. motor cycle for same if in good order. — Bedwell, Cherryhinton Road, Cambridge.

EXCHANGE, brand new 3½ h.p. Clarendon, latest low model, guaranteed perfect, for cash and cycle; cost £40; three days' trial allowed.—Sheldon House, Queen Victoria Road, Coventry.

WILTSHIRE Motor Cyclists can obtain large allowances for their old motors in exchange for N.S.U.'s from Millard and Co., Trowbridge, sole wholesale and retail agents for Wiltshire.

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EXCHANGE 3½ h.p. Beeston Humber, free engine, Longuemare carburetter, 26 by 2½ Palmer cords, Brooks B190, long bars, low seat, for low 2¾ h.p., or sell £16.—W.R., 14, Culmore Road, Peckham.

9 h.p. Riley Tricar, in perfect condition, many extras, very fast and powerful, new July, 1907, and only used once weekly; exchange for light two-seater modern car.—Seager, 44, Wimborne Road, Southend-on-Sea.

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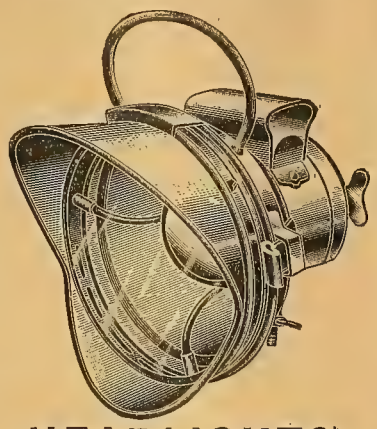

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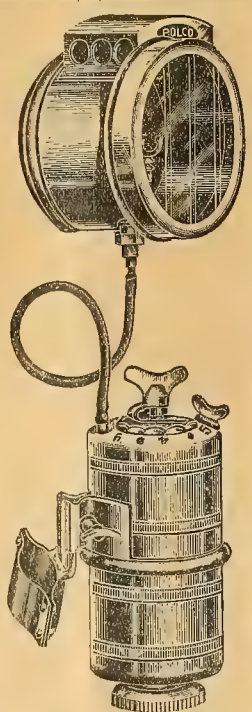

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EXCHANGE screw-cutting lathe for 2¾ h.p. F.N. engine, magneto. — 34, Windsor Avenue, Dublin.

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FIRST-CLASS £30 Piano and cash for two-seated car, good make.—89, Margaret Street, Ashton-under-Lyne.

NEW Special Triumph, Sturmey-Archer three-speed; exchange motor cycle. —9,673, *The Motor Cycle* Offices, Coventry.

EXCHANGE new push bike for motor cycle, cash adjustment, or sell cheap.—H., 13, Rattray Road, Brixton, S.W.

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4 h.p. Steam Marine Set, oil fuel, very compact, new; exchange for lightweight motor cycle or tricar; sell £17.—Hugnes, Gibbins Road, Selly Oak.

3 h.p. M.M.C., 26in. by 2¼in. Clinchers, perfect, also good B.S.A. cycle; exchange for higher power, twin preferred. —22, Chaucer Road, Forest Gate.

WE Make a Speciality of exchanges, and it will pay you to enquire for a quotation for either new or second-hand motors. — Maude's, Powell Street, Halifax.

EXCHANGE Full-size billiard table, by Wright, or first-class piano, for tricar, two-speed, chain drive, free engine, handle starting, water-cooled. — H., 112, Goldhawk Road, W.

TWIN Minerva, 4½ h.p., Chater-Lea, perfect condition, ready for road, spares; exchange for 3½ h.p. magneto Triumph, De Dion, or good make and cash.—9,672, *The Motor Cycle* Offices, Coventry.

EXCHANGE for good motor cycle, or well-known tricar, new furniture, any description, direct from the works, valued wholesale.—Furniture Manufacturer, 3-5, New Norfolk Street, Shoreditch, London.

GENT'S Push Bicycle, three-speed, back-pedal brake, back rim and front rim brake, extra wide mudguards, like new; £4; exchange above for lightweight motor cycle, cash adjustment.—45, Great Colmore Street, Birmingham.

EXCHANGE 5-6 h.p. twin Rex, spring forks, cantilever seat-pillar, 2¾ Clinchers, fitted with Mabon clutch, starts like a car, for smaller power and cash, or sell £23.—The Leeds Motor Exchange, 28, Dock Street.

15 h.p. Mors, has been dismantled, thoroughly overhauled, and reassembled, tyres in splendid condition, with spares, lamps, and tools; would exchange for smaller car, Prudential bond, or consider offer; price £200.—Motor, 33, Acre Lane, Brixton.

3½ h.p. White and Poppe, late 1907, Chater-Lea No. 6 frame, spring forks, by good maker; exchange for twin or sell £22, bargain; 2½ h.p. Bentinck-Minerva, less tyres and saddle, otherwise complete, and very little worn, what offers? — Box No. 9,630, *The Motor Cycle* Offices, Coventry.

WANTED.

ENGINE, Stevens, 4 h.p.; cheap, or similar.—Smith, Cox Street West, Birmingham.

WANTED, Small Car, or open framed twin-cylinder tricar.—Lyndhurst, Knottingley.

RACECOURSE Garage, Doncaster, wants to purchase modern motor cycles for spot cash.

WANTED, Motor Cycles, good makes; cheap; cash waiting.—5, Heath Street, Hampstead.

WANTED, Frame, with tank, for 3½ h.p. vertical engine.—Carrother's, Lisbellaw, Fermanagh.

WANTED, Roc, Phelon, or two-speed motor cycle, also sidecar.—Jarman, Torridge, Torquay.

WANTED.

WANTED, Rex engine, 3½ h.p., exchange good trailer.—A. Covell, 16, Monson Road, Redhill.

1904 Rex front forks and wheel wanted, for cash.—Simpson, 84, Loughrigg Street, Bradford.

WANTED, Vulcaniser, for repair shop, one of the latest.—Chauffeur, Cheadle Royal, Cheadle.

PALMER Cover, Clincher, 28 by 2½, good condition, wanted.—Newman, Sylvester Street, Sheffield.

WANTED, Forecar Attachment for cash; cheap.—F.G., 22, Ingrave Street, Battersea, London.

SIDECAR, rigid, 26in. wheel, left, good fit twin Rex.—Bateman, 36, Addington Square, Camberwell.

WANTED, 9 h.p. Riley or Singer tricar, in sound order, cheap for cash.—6, Bridge Street, Cambridge.

WANTED, 3½ h.p. Motor Bicycle, 1907, magneto; approval. — Marshall, East View, Lindal, Lancs.

WANTED, Push Cycle and cash for 2¾ h.p. Minerva, like new.—9,670, *The Motor Cycle* Offices, Coventry

WE Purchase Motor Cycles for cash; exchanges entertained. — Motors, 26, Offerton Lane, Stockport.

WHITTLE'S Belt, 9ft. by ⅞in., good condition; approval, deposit.—Woolston, Snarestone, Atherstone.

WANTED, a radiator, 1ft. 9in. long, and 1ft. high, gilled or honeycombed.—Moreton, Bembridge.

WANTED, for Easter, Motor Cycle, also tricar or car; must be cheap. —W. Gait, 7, Dagmar Road, S.E.

WANTED, Twin Rex de Luxe, in good condition; cash waiting.—Hill, Rectory Road, Sutton Coldfield.

WANTED, good leather D.B. coat, length 34, chest 44 inches or more —S., 2, Ermine Street, Huntingdon.

WANTED, modern motor cycles, must be cheap for spot cash.—Smith, Ford Street, St. Mary, Nottingham.

WANTED, 1907 or 1906 Triumph, any condition; must be cheap for cash.—Rey, 5, Heath Street, Hampstead.

WANTED, twin Peugeot engine, also 850 by 120 inner tube and non-skid. —Ferris, 41, Church Street, Camberwell

WANTED, comfortable coach-built seat, for forecar attachment, with low springs.—O.S., 369, Edgware Road, W.

WANTED, motor cycle; exchange upright grand piano.—No. L2,074, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

WANTED, Cane Sidecar and little cash, 26in. wheel, exchange 1½ h.p. Minerva, B103.—Waddon, New Road, Croydon.

WANTED, 3 h.p. Fafnir engine, complete, fair price; no crocks; approval.—Dew, Lullingstone, Eynsford, Kent.

SIDECAR, for 28in. wheel bike, Montgomery preferred; cheap for cash. —Francis, 8, Guildford Road, Southend-on-Sea

WANTED, 1908 Triumph Motor Bike and £10 in exchange for two-cylinder two-seater car.—Stagg, Thorpe Vicarage, Chertsey.

WANTED, 2½ h.p. De Dion water-cooled head, for Royal Enfield trike, sound and cheap.—Wright, 47, Sunny Bank, Sheffield.

WANTED, in good running order, Motor Cycle; payments 20s. a month. —P.B., c/o Stanley's Library, 56, Stanford Hill, London, N.

WANTED, good motor cycle or tricar, in exchange for new furniture, any description, direct from works, valued wholesale.—Elias Steinberg, 9, French Place, Shoreditch, London.

WANTED, drilling machine, for power, and cash to the value of £16, in exchange for 3½ h.p. motor cycle, low built, extended handles, low seat, brass tank, grand hill-climber.—P., 19, Myddleton Square, Clerkenwell.

The "CELERIO."

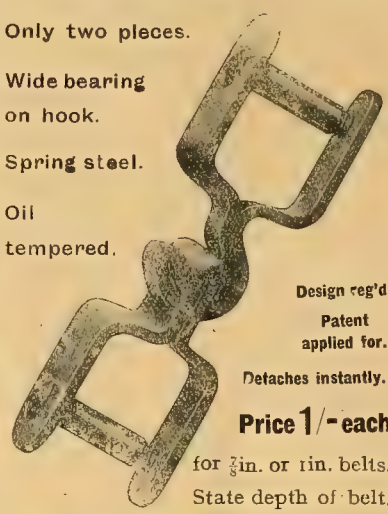
A PERFECT BELT HOOK.

Only two pieces.

Wide bearing on hook.

Spring steel.

Oil tempered.



Design reg'd.

Patent applied for.

Detaches instantly.

Price 1/- each

for ⅞in. or 1in. belts.

State depth of belt.

South British Trading Co., Ltd.,

13-15, WILSON STREET, LONDON, E.C.

Reliability Trials, 1908.

Do not rely too much on your cover and engine, but have your machine fitted with

The Rich Improved

De-tach-able Air Tubes

NOT BUTT ended. Free circulation of air

THEY ARE ALWAYS RELIABLE.

Extract from "The Motor Cycle"—

Mr. B. H. Davies, End-to-End ride, "The Rich behaved perfect."

E. Fawcett, "The Rich seems the only detachable tube to be relied on."

Ask your agent, or write for booklet.

The RICH Detachable Air Tube Co.,

CRAWLEY. SUSSEX.

WANTED.

MOTOR Cycle, in exchange for gent's three-speed cycle, ½-plate camera and apparatus, all as new.—H.S., 414, Alfreton Road, Nottingham.

WANTED, 26 by 2 studded cover, wired-on, small spray carburetter; approval.—Estop, 8, Hertford Road, Downham Road, Kingsland, N.E.

WANTED, Sidecar, suit 3½ h.p. Rex, right side, any condition, if sound, or without tyre, or exchange trailer and cash.—28, Hurst Grove, Bedford.

WANTED, 5-6 h.p. Twin Forecarriage, two-speed gear, free engine clutch, must be in good condition, will give new piano; cost £26 5s., with ten years' warranty.—Box 9,664, *The Motor Cycle* Offices, Coventry.

CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card. — Address, "The Cycle and Motor Trades' Review" Offices, Coventry.

WANTED.

£25 offered for 3 h.p. 1907 Triumph, in good condition; immediate purchase.—9,613, *The Motor Cycle* Offices, Coventry.

WANTED, good motor bicycle; would exchange large well balanced canvas canoe.—S. H. Fitch, Elmhurst, Romford.

WANTED, twin or single motor cycle, magneto Triumph preferred; state where seen; London suitable.—4, Lodge Lane, Liverpool.

WANTED, 4 h.p. Stevens engine, 4½ h.p. Jap, 6 h.p. Jap, or 4½ h.p. Noble, perfect, but cheap.—14, Marina, Esplanade, Southampton.

WANTED, motor cycle, not less 5 h.p., magneto, Rex de Luxe or Vindec, or good make; £25 to £30.—Cullum, 27, Butts Hill, Frome, Somerset.

TRICAR, Riley preferred, will give £40 for genuine bargain; expert examination and trial.—9,675, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

TRICAR, three-seated, coach-built, open frame; cheap for immediate cash, or exchange handsome pony turnout. — Knight, Maypole House, Bexley, Kent.

WANTED, a real good tricar or small car, must be perfect, will exchange goods to the value of £50, mostly antique; all letters replied to.—41, Warwick Road, Batley.

TRICAR or motor cycle as part exchange for 7 h.p. Peugeot car, detachable tonneau, splendid condition; photo.—B., 38, Lonsdale Road, Barnes, S.W.

RILEY, Singer, or similar tricar, twin-cylinder, 6 h.p., three speeds and reverse, wanted; cheap for cash.—Batchelor, Clarence Street, Kingston-on-Thames.

ADVERTISER will give up to £40 for really reliable two-seated tricar, something similar Rex Litette preferred; trial required before purchase.—Address, Pembury, Staveley Road, Eastbourne.

WANTED, good second-hand motor cycle, not less than 3½ h.p., with or without free engine and two-speed gear; cheap for cash.—Full particulars, No. 9,652, *The Motor Cycle* Offices, Coventry.

MISCELLANEOUS.

THE Best Silencer made is Aldington's patent Silent, from 10s. 6d.—Below.

THE Ball Bearing Ideal Fan will cool any engine; 28s. 6d.—Below.

MY Footrests, reduced to 6s. 6d., are a luxury, spring rests, 17s. 6d.—Aldington, 59, Haydon's Park Road, Wimbledon.

BEST Offer accepted for first two items Too Late Column, March 25th.

TANKS of all kinds made to order.—Doggett, metal worker, 65, Turnmill Street, London.

TWIN Bassee-Michel trembler coil, as new; bargain, £15s.—135, Antill Road, Bow.

MOTOR Tricycle Frame, complete, new; will sell cheap.—Cox, 94, Long Street, Birmingham.

60 Amp. Dynamo, £1 10s.; trembler coil, 8s. 6d.—113, Plashet Grove, East Ham, Essex.

WHIPCORD Breeches, latest cut; 10s. 6d. — J. C. Savage, 119, Donegall Street, Belfast.

FIRST £1 has splendid collection 750 stamps, valued double. — Brown, Jun., Leuchars.

2½ h.p. M.M.C. engine, new, never used; £5 10s.—Woodhouse, Main Street, Sedbergh, Yorks.

5-7 h.p. Twin Peugeot, engine only, perfect; cheap; offers.—123, Graham Road, Hackney.

4½ h.p. Jap Engine, £7 15s., brand new; sidecar, £3 15s.—Granville, 209a, Peckham Rye, S.E.

TWIN Non-trembler Coils, new, unused, best make; 12s. 6d. each.—Farrar, Square Road, Halifax.

THE MOTOR CYCLE

Vol. 6. No. 265. April 22, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

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American Amateur Definition.

OUR readers will remember that the President of the Federation of American Motor Cyclists recently stated in the *Bicycling World*, New York, that any American riders who came over and competed in the Auto Cycle Union End-to-end Trial would be prevented from competing in any further amateur events in America. He based his threat on the fact that competitors in the A.C.U. events competed for cash or medals, at their option. In the End-to-end Trial there is a Private Owners' Class, which, in our opinion, completely covers the ground as far as amateur riders are concerned. However, the President of the F.A.M. has written to the Secretary of the A.C.U. (in reply to a letter addressed to him) giving the American definition of an amateur motor cyclist, and confirming the threat against American riders. This definition should be interesting to our readers, and we therefore publish it below. We trust the American competitors will still come over and compete in the End-to-end event, even if they have to lose their American amateur status. We already understand that one of the intending American competitors will come over and follow the riders throughout the trial, even if he does not actually compete.

[Extract from letter sent to Mr. F. Straight, secretary A.C.U., by Mr. R. G. Betts, president F.A.M.]

THE F.A.M. DEFINITION OF AN AMATEUR.

"An amateur shall be construed to be a man who has not competed in any sport against a professional or for cash, whether in the form of prizes, wagers, gate receipts, or 'appearance money'; who has not sold or otherwise realised pecuniary benefit from a prize, and who does not engage in competition as a means, or a partial means, of livelihood.'

Through Routes.

IN a paragraph elsewhere we call attention to the fact that the R.A.C. is pushing forward the work of signposting Watling Street. The secretary in a recent report rightly calls attention to this old, and in places diverted, highway as an excellent means of communicating with many large towns, also as a through route from London to the Welsh border, avoiding Birmingham and the Black Country. This good work on the part of the R.A.C. calls to mind the fact that the Watling Street has been diverted in several places, or, to be correct, the existing main road no longer follows the old line of route, but leaves it at various points to rejoin it further on. For example, the old line of Watling Street runs direct from Weedon on the London-Holyhead Road to a point about two miles beyond Kilsby station on the London and North-Western line, whereas the existing main road goes round through Daventry, and those who wish to pick up the Watling Street again must travel *viâ* Daventry and Kilsby. The old line of route is easily traceable from Weedon to where it rejoins beyond Kilsby, and there are, of course, numerous other instances of its diversion. The purport of these few lines is to point out the immense advantage it would be to motorists generally if the unused stretches of this road could be remade. The old line is there, and the foundation exists, so that it would be a matter of comparative ease to relay it with a surface dressing and clear away the brushwood, and a through route would thus be provided from London to Shrewsbury, and so on to Holyhead. Points we know in addition to the one mentioned above at which diversions have been made are near to Shenstone, Lichfield, Wellington, St. Albans, and doubtless there are others.

Lightweights for Ladies.

IN the recent discussion on the future of motor cycling, it was gratifying to find so great an authority as Dr. Hele Shaw use these words, "And ladies, too, ought to be catered for." Of course, they ought. I have been preaching this gospel in *The Motor Cycle* for years, and long ago expressed the opinion that it was not so much mechanical difficulties which prevented my sex from adopting the delightful and exhilarating pastime with enthusiasm as the terrible weight of the machines they were called upon to ride.

I have now owned six different motor bicycles. Beginning with a 1¼ h.p. Minerva built by poor Dan Albone, I successively tried a 2 h.p. of the same make, a Clyde, a Phœnix, a 2¾ h.p. Hulbert-Bramley, a 3 h.p. Singer, and a 3 h.p. Advance.

Mrs. J. T. Robinson, of Huddersfield, who hopes to tour with her husband this year on a motor cycle. Mr. Robinson is a well-known local cyclist and motor cyclist. Mrs. Robinson has purchased Miss Muriel Hind's 3 h.p. chain-driven Singer.

Looking back on my varied experiences, I can confidently affirm that the machine I liked the best and did the longest journeys on was that of the lowest horse-power. Apart from vibration (it was before the days of spring forks), the terminals frequently shaking loose, and slip of the round belt, my troubles were *nil*.

Worries Increase with Weight.

But they augmented with increase of h.p. Timing pins sheared off; magneto bedplates lost their bolts, letting the chain fly from the cog wheels; exhaust valves jammed in their guide; and sundry other mishaps occurred from time to time. I am sure that the ordinary good lady cyclist would not object to assisting a small engine; mind you, I say assist, not pedal. There is a mighty difference. The former is quite a pleasurable sensation; the latter a deadly, heart-straining labour. Speed has great charms, I admit, but independence possesses greater. An average woman weighing about 9 stones has not the physical strength to start a machine of nearly 200 lbs., save down a slope. This is a tremendous drawback. Often whilst pushing and hauling my bicycle to a favourable incline, I realised how the tortoise could beat the hare, and how a lightweight permitting of easy mounting was really more suitable for a woman than a speed monster. Personally, I am not ashamed to admit that after experimenting in many directions I am now going back to a low horse-power combined with a light bicycle, which I can push, pedal, and manipulate at will without any undue effort.

The Clyde Co., Leicester, have built for me a machine with a Motosacoche set, the weight of which does not exceed 80 lbs. I hope shortly to submit a photograph for inspection, and if it does not induce many ladies to enter the ranks of motor cyclists I shall be greatly disappointed. In my humble opinion it more nearly fulfils the requirements of the female sex than any machine I have yet ridden. Lightness, strength, and rigidity are combined with handle-bar control (which I have ever advocated), a two-speed gear hub, most efficient brakes, and high-tension Bosch magneto, Type DA1.

A Real Motor Bicycle.

The whole constitutes a real motor bicycle, not a mere toy, as some might imagine. But it is a machine that even frail woman can pedal home with ease and comfort in the event of any breakdown arising beyond feminine skill to repair. In place of sallying forth with a vague amount of uncertainty as to her return, she can undertake a journey full of confidence, knowing that if the worst comes to the worst she has only to unhook the belt, when her mount becomes almost as easy to propel as an ordinary bicycle. Surely the time has come when even timid ladies may go in for a lightweight. Personally, directly I saw the Motosacoche and what it could do, my mind was made up.

MRS. EDWARD KENNARD.

[WITH APOLOGIES TO W. S. GILBERT.]

By the side of a motor an architect stood,
Singing willow, tit-willow, tit-willow.
Said he, the design of this bike is no good,
Singing willow, tit-willow, tit-willow.
So I'll change all the wiring—a new coil I've got—
Plugs, tank, carburetter, and heaven knows what,
And I've handle control for the whole bally lot.
Oh, willow, tit-willow, tit-willow.

For weeks upon weeks, and from morning till night,
Oh willow, tit-willow, tit-willow,
He worked at that motor with main and with might.
Oh willow, tit-willow, tit-willow.
The bike then was certainly like a new pin,
And at Brooklands he thought it could easily win;
But, alas! when the bills for the new parts came in ——.
Oh willow, tit-willow, tit-willow.

MORTON BROWN.

Flash antiseptic cleanser is, as its name indicates, a preparation for removing grease, dirt, etc., from the hands. We have tried it, and it certainly does its work well. It can be obtained from Brown Bros. Ltd., Great Eastern Street, E.C.

Recently "Ixion" stated that the manufacture of Autoclipse lamps had been discontinued. This statement is incorrect, as Brown Bros. write that they have taken over the agency for the Autoclipse lamp, and intend to push it. The 1908 model embodies the following improvements: (1) Double back, with stronger lamp bracket on the back; (2) flat face, instead of round spun-over face. The weight is 2½ lbs., and the lamp can be supplied with three different types of brackets.

DUAL IGNITION

A CONSIDERABLE amount of doubt exists on the subject of dual ignition, *i.e.*, with regard to ignition by battery or magneto at will, particularly in the case of the Eisemann magneto, using ne contact maker, and that the one on the magneto iachine, to produce the rupture of the current. A orrespondent recently pointed out iat he had obtained erfect results with n Eisemann mageto fitted to a ½ h.p. N.S.U. y adopting a sysem of wiring as in g. 1. This system s to enable a rider f a machine so tted to use an ccumulator or iagneto at will by ieans of a two-way vitch. We have eard so many ifferent opinions ith regard to this system of wiring with an accumulator in the circuit, and the Eisemann magneto, and ie damage it is likely to do to both accumulator and agneto, that we submitted our correspondent's letter with regard to the Eisemann magneto to the United Motor Industries, Ltd., 45 and 46, Poland Street, W., who replied as follows:

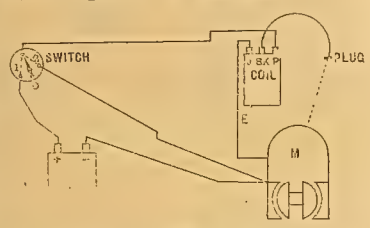


FIG. 1.

To use an accumulator or magneto at will by means of a two-way switch.
Switch on 1 Starting position. Accumulator in circuit.
,, ,, 2 Magneto in circuit.
,, ,, 0 Neutral (off position).
The letters on coil correspond with those on N S U coil.
The low tension wire from terminal J on coil is earthed to frame.
The wires from magneto to switch and accumulator start from same terminal on magneto. An ordinary two-way switch is used.

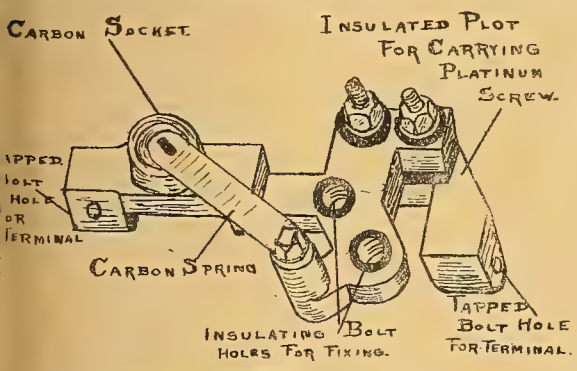

CARBON SOCKET
INSULATED PLOT FOR CARRYING PLATINUM SCREW.
TAPPED BOLT HOLE FOR TERMINAL
CARBON SPRING
INSULATING BOLT HOLES FOR FIXING.
TAPPED BOLT HOLE FOR TERMINAL.

FIG. 2.

Sketch showing the insulated plot as fitted to the contact breaker of Model C Eisemann magneto machine.

"It is perfectly correct that, as per sketch, your correspondent could get results with the accumulator in conjunction with the coil, but if he does not take out the carbon which connects the magneto current through the bus bar, the accumulator is likely to be short circuited if the switch is accidentally turned on afterwards, and, not only this, but he would be charging the accumulator up with an alternating current from the magneto while the switch is on the accumulator side. We take it this would only be a temporary matter, because we presume he would switch over immediately the machine had started.

"The suggestion, as per the diagram, fig. 1, is really not a proper system to use. We may mention that such a scheme was tried by Panhard and Levassor a few years ago, and, curiously enough, one of the troubles was hard starting, which is one of the difficulties your correspondent desires to overcome. If the carbon be taken out, results can be obtained, but it is not advisable that the carbon be continually handled, as such a procedure is liable to weaken the spring which clips the carbon in, and this would result in faulty ignition on the magneto. We should only recommend the system of wiring as shown, under such circumstances as to get a man home if the magneto were broken down.

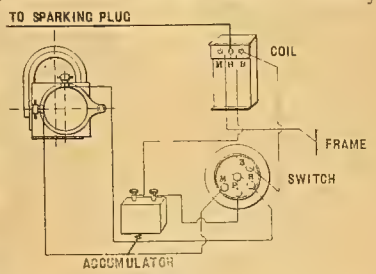
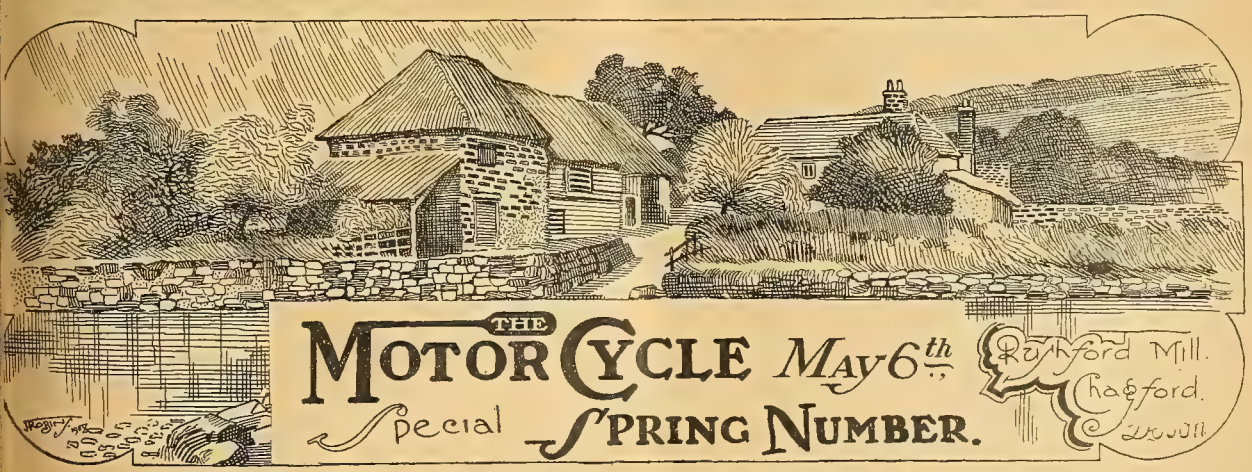


FIG. 3.

Wiring diagram for Eisemann Model C magneto when used with accumulator or magneto at will, and insulated plot. The switch letters signify
R. Both ignitions "off."
M. Magneto "on."
P. Accumulator "on."
B. Terminal for wire to coil.

"Now, the system which we should advise would be what is known as the dual plot system, as now used by Panhard and Levassor (see figs. 2 and 3). The insulated plot for model C magneto, including the switch, is one guinea, and this part can be obtained from our address as above, or from the Coventry depot, Sherbourne Works, Gosford Street, Coventry."



MOTOR CYCLE TOURING.*

(Continued from page 300.)

THE DISCUSSION.

The Chairman, Mr. Chatterton, commenced the discussion by congratulating Mr. Candler on his lecture, and his success in speaking without notes. The success of a tour mainly depended on temperament. He had toured with Mr. Candler, and had had a good many breakdowns, but they were pleasant to look back upon. Mr. Candler had alluded to motor cycle touring, but he thought all forms of touring are enjoyable, walking, push bicycle, or touring about in taking train from centre to centre. With regard to doctors' ideas that motor cycling was beneficial for the lungs, he was sure medical opinion was borne out by experience. Nothing so revivified the constitution as riding a motor cycle in beautiful air; and as to cycle camping and the beautiful and interesting slides Mr. Candler had shown of it, he hoped Mr. Candler's lecture would induce some of the audience to adopt this admirable and healthy form of touring, and trusted this question would be heartily discussed. He proposed a vote of thanks to the lecturer, which was accorded with acclamation.

Professor Archibald Sharp continued the discussion. He had not done a tenth part of the touring he should have liked, though he had had the privilege of touring a little in Mr. Candler's company, and he thought the delightful word picture given was more than borne out in practice, especially if his advice to choose a suitable companion is followed, and if Mr. Candler is available don't miss the opportunity of getting him. Motor cycling on the Continent had been neglected by English motorists, and he called attention to the announcement in the R.A.C. *Journal* that he and Mr. Chatterton had made arrangements to start classes in Esperanto. It was suggested that a party of motor cyclists should be organised to make a journey to Dresden in August and attend the Congress of Esperantists. Though Esperanto was ridiculously easy, he did not say you could tour abroad and talk to everyone you met, but it was possible between now and August to get a conversational knowledge of it, and if motor cyclists of France and Belgium could be persuaded to do the same a new vista would be opened up. He specially expressed his personal pleasure in listening to Mr. Candler's lecture. (Hear, hear.)

Mr. H. G. Bell endorsed Professor Sharp's remarks. He had no idea Mr. Candler had been so great a traveller, and regretted he had not been with him on his journeys. He gave some experiences of losing friends while touring, and agreed with the counsel of Mr. Candler to arrange a meeting place. Referring to trouble in getting petrol, at Cork he emptied out water instead of petrol when challenged by the authority, knowing full well there was none at Milford Haven. He thought home scenery and roads should receive first attentions. He welcomed the fact that Humber, Ltd., were going in for motor bicycle manufacture. He hoped the firm would bring out a good touring machine of moderate power and at a moderate price.

Mr. Reynolds had enjoyed the touring yarns; in describing experiences they had seemed to be describing his own. He had done much touring on push bicycles, and no doubt it would be very interesting to do it over again on a motor bicycle. Mr. Candler had been very hard on the heavy bicycle on account of starting. He thought it was a matter of personal attention to the machine, keeping it clean, and in good order, which obviated any difficulty in starting. In hilly districts an efficient two-speed gear was a necessity. A suitable companion was also necessary, and although attended with great risk, advertising had secured him one of the best of touring companions. With regard to arrangements for meeting, he had lost a friend for three days through neglecting proper precautions, and his friend's pocket was, to make things worse, in an unfilled condition, what little cash there was in it being devoted to telegraphing home for more.

Mr. Moeller (Secretary Association of Cycle Campers) then exhibited a touring camp outfit, one weighing 15 to 16 lbs., for two persons. He recommended especially aluminium saucepans—with detachable handles—unjointed knives and forks, and paraffin stove. Enamel cups were better than those of aluminium, as the latter soon became hot, and remained so a long time, even after the liquid contained in them had cooled. A full set of camping apparatus was exhibit and explained by Mr. Moeller. He claimed that campi was not a fad. In spite of the weather his association h year doubled its membership, and they had recently receiv many press notices. When camping they did not live pemmican, their dinners were of three and four cours Practically every farm is a camping site, for permission camp is easily obtained. A little shelter is all that is need and this gives rise to an added interest in the way the wi is blowing or is likely to blow. A tent has been erected a prepared in two and three-quarter minutes, and with a lit practice anyone could do the work in five minutes. A gr charm of cycle camping is to be able to start at an early h in the morning. Several of the members of the associat go to the Continent for camping tours every year, and speaker himself some years ago went a tour in Belgium, this country, he thought, was not a suitable one, except Ardennes. Mr. Moeller answered numerous questions *re* camping kit, the cost of which latter, for two, would be ab 70s. to 80s.

Mr. Tuchman thought Mr. Candler's paper the best si Mr. O'Gorman addressed them. He claimed a little exp ence in motor cycle touring in France, Belgium, Holla and Germany. Though some amongst them might th Mr. Candler rode an old-fashioned machine, this was not It was on Mr. Candler's advice that he went in for a 3 h Quadrant, and it had given excellent service. He agr that a single cylinder motor bicycle was best, and a g strong-framed one. One of the greatest boons was a m neto. There may be an impression that when you are the Continent you are in for trouble, but the Continer repairer is a friend. The speaker's tank went wrong when French tour, and the repairer for three hours' work char only four francs. Accumulator charging stations may seen in the excellent "Guide Michelin," issued by Michelin Tyre Co. at 3s. In touring he objected to packing up in the morning, and the lack of carrying sp was a drawback to motor cycle touring. For himself, dispensed with as much as possible. He strongly rec mended the Continent of Europe for touring on account good roads, and there was nothing to be afraid of; there every reason to go out of this country.

Mr. Hooydonk thought camping was sometimes taken a bit of a freak, peculiar to vegetarians, non-smokers, He had last summer gone on a tour and found it most joyable and very comfortable. There was no need to on the score of weather.

Mr. Candler wound up the discussion and thanked audience for their appreciation. Answering a question Customs formalities, if one is a member of the Cycli Touring Club or Touring Club de France, these matters sent no difficulty in France, Belgium, and Switzerland. is more difficult in Germany, and it is not a simple ma in Italy. The great charm of touring was to make a tinual picnic. Choose a quiet place by a stream, where could have a cup of tea in a far more enjoyable manner t in an hotel, where the cost would be five times more, less comfort. If what he had said, concluded Mr. Cand induces *one* even to go in for motor cycle touring, he sh feel his labour had not been in vain.

Mr. C. Owen, who has been for some time identified w the Premier Motor Co., Ltd., wishes to announce that h resigning his position as a director of that company.

We are asked to state that Mr. W. Hayes, who recei resigned his position with Messrs. J. Horner and Co., again take an active interest in the control of the Rex age at 21a, Store Street, W.

The Quadrant Motor Co., Ltd., Earlsdon, Coventry, wo be glad if all readers, when addressing communicati to them, be careful to use the full title of the company above, and so avoid confusion with any other firm.

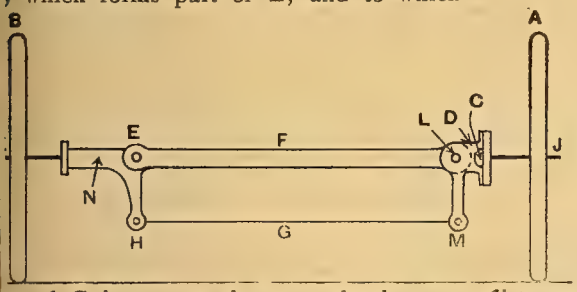
J. H. Calvert and Co., Eston, Yorks, wish us to inf readers that they are not manufacturing the two-speed g described and illustrated under the heading of "Rec Patents," April 1st.

* A lecture by Mr. A. Candler delivered before the members of the Auto Cycle Union on Friday, April 10th.

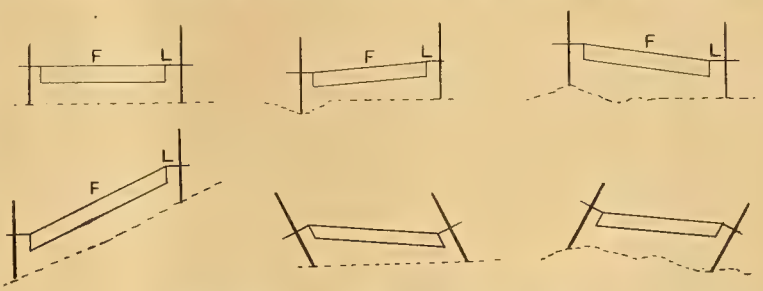
A Novel Sidecar Suggestion.

WE have received particulars of a novel suggestion for a flexible sidecar. Without making an experimental machine for trial it is, of course, impossible to say how the device would act n the road, but it appears to have possibilities.

The line drawings, which are reproductions from ır correspondent's sketches, show the back kle only of a sidecar, and it will be seen ıat the axle F of the sidecar is free to move ertically on the bearing L. It is also ointed at E, and practically corresponds to e jointed or Ackermann type of fr wheel kle of a tricar. A represents the back heel of a motor bicycle, C the chain stay, a bracket secured to C, and having a earing at L, and another M vertically ıderneath. N is another bracket free to ove on the joint E, and having a lever , which forms part of E, and to which



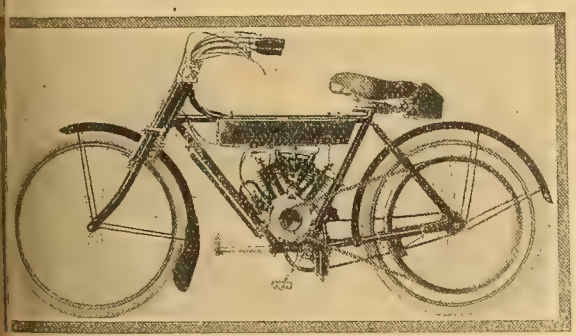
rod G is connected at exactly the same distance art as the centres of the bearings E and L. K represents the axle of the sidecar wheel and B the sidecar wheel itself. It will be apparent that the wheels of the sidecar and bicycle must always be parallel, because any movement of the bicycle out of the perpendicular line moves the lever M. The movement is then conveyed by the rod G to H, and the



sidecar wheel assumes the same angle as the bicycle. Any sideslip would involve the dragging or pushing of the sidecar wheel sideways, and the resistance of the sidecar wheel, it is claimed, will prevent sideslip. The other line diagram shows various positions that the wheels would assume on unequal ground, the wheels of the bicycle and sidecar remaining parallel to one another. It is suggested that by temporarily attaching either F or G to either N or D by a rod or stay that the bicycle and sidecar would then stand upright without any support. The front of the sidecar frame would be suitably connected to the bicycle by a flexible joint, the movement allowed by the joint being vertical only.

IMPROVEMENTS IN THE MOTO-REVE.

INCE we chronicled our experiences with the Moto-Rêve twin cylinder lightweight machine, we have heard from the company that some improvements l be introduced on future machines sent out. The ıdles will henceforth be turned down slightly to pro-le for a still more comfortable position. Footrests can



The 1908 model 2 h.p. Moto-Reve with direct belt drive.

supplied, when ordered, these being made of steel ing and plated. They fit into the end of the tube ich projects from underneath the crank chamber. e attachment for the belt rim is now being made more id, and orders for machines received after the pre-t date will have belt rims specially made, and ked to the wheel. These belt rims will be provided h 5⁄8in. V grooves of 28° angle, which will allow of a direct drive, the frame being altered slightly to allow for the necessary clearance for the belt. The stand and carrier have been considerably improved, and made separate. The stand will be fixed to the chain stays to allow for removal of the back wheel with the machine jacked up. The carrier will be of the tubular pattern, and the firm are prepared to supply these carriers for all makes of motor cycles. The saddle is also to be made more comfortable. To provide for easy starting, a tank is being fitted for paraffin. This will be a continuation of the petrol tank in front, and will be fitted with screw down valves and pipes leading to the two compression taps. It will hold about a quarter of a gallon, and it will be possible to inject a small dose of paraffin every time before starting without soiling the fingers or tool-bag. The Motor Rêve Co. tell us that an instruction booklet is in the press with an illustrated and numbered list of spare parts for the machine.

The second edition of "The Autocar Handbook," Iliffe & Sons Ltd., 20, Tudor Street, E.C., is now on sale. The whole edition has been entirely revised, and many illustrations have been added. "The Autocar Handbook" is naturally of greater interest to automobilists than to motor cyclists; nevertheless, as a certain number of motor cyclists are always in the transition stage between motor cycling and automobilism, the handbook will no doubt be eagerly purchased by many of our readers. The price of the book is 1s. 6d. net or post free for 1s. 9d.

Occasional Comments

By "IXION."

The End-to-end Record.

Little whispers in motor cycle circles indicate that quite a crop of attempts will be made this year on Harold Williamson's figures for a record ride between Land's End and John-o'-Groat's. The last two years have been practically stagnant as regards this once jealously desired record, and the recrudescence of plans upon it proves two things—that machines are greatly improved, and that the trade in machines is exceptionally flourishing. Competition for this record died down both because the figures set up by Williamson were too good to afford any very great promise of a new record with the machines then in vogue, and also because things were a little slack in the industry, and makers did not care to face the expense of an attempt, coupled to very probable failure. I shall be surprised if Williamson does not have to choose this year between surrendering the Rex record or setting up new figures on one of his later machines.

Sidecars in the End-to-end.

Several enthusiasts have written me *apropos* of entering sidecars in the End-to-end, and to save myself further letters, as I am too busy at present to deal with individual correspondents, I will state the main reminders I have to give on this special point. The first is the need of ample power. While Berriedale is the only really exacting *gradient* on the course, there are some very trying hills, and head winds are to be expected up North. A sidecar suffers much more from windage than a tricar, and with an air-cooled engine the long ascents of Shap and the Grampians will demand a very high h.p. indeed if the conditions chance to be adverse. Each ascent includes miles and miles of climbing, and should the wind be adverse and the roads heavy, only powerful cycles will manage the ascents, while they are too lengthy for pushing to be consistent with the retaining of a clean score sheet. My second reminder is the need of a really low second gear. I think 9 to 1, with a combination weighing 260 lbs. unloaded, will not be a point too low for the work to be tackled. My third is the provision of a very staunch rear cover. There are some bad surfaces and plenty of sharp corners. Most of the rear tyres fitted to twin-cylinder motor cycles have no margin of strength for the work they are designed to perform, and when a second passenger, a lot of luggage and a sidecar are added, a much larger tyre and rim are emphatically called for. Personally, I should not dream of entering a sidecar except with a voiturette tyre on the driving wheel. It is to be hoped that any sidecar entrants will study their outfit carefully. The sidecar is now booming very nicely, and we do not wish to see its popularity daunted by the entering of several unsuitable outfits, doomed from the start to certain failure. The easy conditions and uniformly pleasar weather of 1906 are scarcely likely to be repeated.

A Weird Experience.

Seeing that certain correspondents had been sendin me strange yarns of late, the works manager of a ce tain motor cycling firm has retailed the following which he vouches for (personally, I feel bound to mai tain strict neutrality). He sold a twin-cylinder machi to a customer who was a bit of a duffer. The said cu tomer returned the machine a few months after, allegi that it would no longer climb hills as it used to. T mechanics speedily found that the inlet valve w altogether missing from one cylinder, and present they noticed a gaping rent in the top of the pisto which proved that the valve had gone through it a down into the crank case. On dismantling the cra case they found an absolutely spherical metal marb This proved—so he says—to be composed of t moulded remnants of the inlet valve, which h dropped into the engine owing to its cotter comi adrift. It had worked in between the flywheel and cheek of the crank case, and had scored a deep groc in the aluminium all the way round. Next please!

Kit of Spanners.

This week I have received the catalogues of t American motor cycle manufacturers, and I notice th in each case they supply a kit of spanners identi with those used by their own fitters in the works assembling the machines. This is a very excell idea. The gratis tool kits of English makers rapidly improving, but I have never yet received wit new machine a kit of tools available for every nut the machine. There is always at least one nut which a special tool has to be made at the first opp tunity. Sometimes it is the petrol union beneath carburetter, sometimes the nut at the bottom of internal oil pump, sometimes one of the nuts on base flange of the cylinder; but, whichever it is, th is always one nut at the very least for which I mak special spanner after attempts to shift it with those the free kit. Even if a small extra fee were charg for the kit, riders who habitually attend to their o mounts would be glad to own as convenient an ou as possible. The addition of three small t spanners with a tommy bar, or two or three op ended S spanners would be all that is needed.

Messrs. Markt and Co., 6, City Road, E.C., inf us that their little Baby Auto-torch, an accessory which we have previously referred, is selling so rema ably well that they have been enabled to reduce price to a very low figure. Motor cyclists will f this handy little blow lamp of inestimable use small repairs in the garage. It burns ordinary pe and will last for two hours on one filling. It will burn in any position, so that all sorts of inaccess little corners may be reached by it.

BELT v. CHAIN.

A Reply to Mr. B. H. Davies, by A. WHARTON METCALFE, Assoc. M. Inst. C.E., etc.

THE article by Mr. B. H. Davies on the above subject in your issue of April 1st will doubtless command almost as great an interest generally as his many previous contributions on various ics of motor cycling interest have done.

Mr. Davies has done much to advance motor cycling, t perhaps his most important work has been in con- tion with the question of variable gears, in regard which he has educated motor cyclists, while he has ng from manufacturers a grudging recognition of importance of the subject, which has resulted in a nber of them devoting some attention to their pro- tion, so that there are now a number (good, bad, and ifferent) from which selection can be made, to say hing of variable pulleys and free engine clutches, ich are stepping stones to variable gears.

The Future of the Motor Cycle.

The consistent attitude adopted has made innumer- e converts, and I do not think it is saying too much contend that the success of the motor cycle in the re as a means of taking lengthy tours far afield is issolubly bound up with this question of variable rs. It is therefore with feelings of some regret that r reading Mr. Davies's article on the above it ned to me that in his out and out advocacy of the ky" belt drive for solo machines he was likely to rd the advance of variable gears to some extent.

Mr. Davies says that those makers who have adhered ie chain drive for the last five or six years turn out oughly satisfactory examples of it, but, as a rule, ill be seen that such makers have been compelled dhere to it, through some feature of their machine h as a two-speed gear) forbidding belt transmission gether, by which he means, presumably, that the icular type of two-speed gear precludes the use of elt.

Mr. Davies admits, frankly, that the exponents of chain-driven motor cycle make a good article. It so a matter of common knowledge that the Phelon Moore and the Anglian two-speed gears are the widely known gears with chain transmission, and are eminently satisfactory. The Anglian can used in conjunction with a belt, and I believe the lon and Moore could be altered to do so, though btless it would lose in efficiency.

ssuming, however, for the moment that the belt is uded and that we confine ourselves to solo machines, ould restate the chain *v.* belt controversy thus: ain-driven two-speed gear motor bicycle, in spite ertain disadvantages attaching to the chain, is pre- ble in any case to a single gear belt-driven motor cle, and, until two-speed belt-driven gears are much oved, even to a two-speeder. Free engine clutches variable pulleys, being in the nature of makeshifts, rposely leave out of the discussion.

The Pros and Cons Considered.

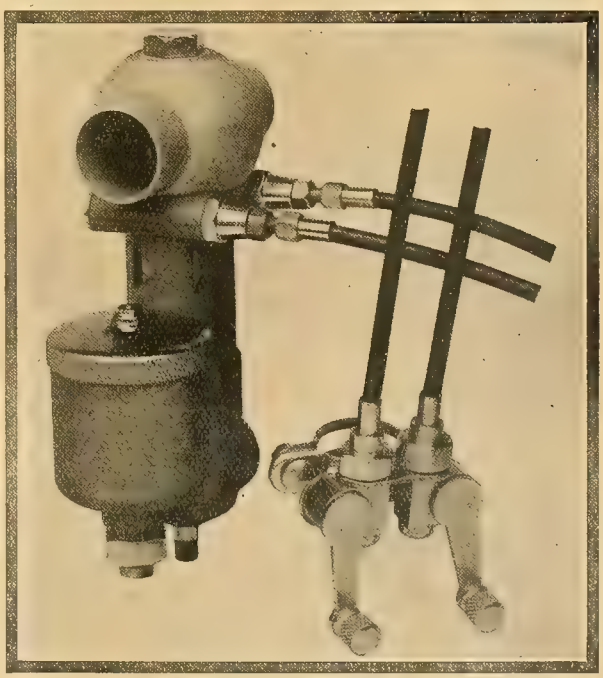
he objections to the chain drive are (1) Extra ation and harshness; (2) an added risk of danger e engine jams or the chain breaks (this risk may between wide limits, and reduce to a very small ; (3) a little extra weight. Its advantages are: uitability for two-speed gears; (2) great efficiency the belt as a transmitter; (3) economy in cost and nce of transmission troubles.

Dealing with the principal disadvantage, viz., No. 1, there is more vibration, but even after a long ride of 140 miles I cannot say it has troubled me in the least. As regards harshness, it is certainly not as "silky" as the belt. On the other hand, with a good clutch it leaves little to be desired, and its discomforts have been utterly exaggerated. As to its advantages, its suitability for a two-speed gear, its efficiency as a transmitter, and its reliability place the chain far ahead of the belt for touring and winter riding.

Belt-driven Two-speed Gears.

Two-speed gears to be used with belts are of two kinds—engine-shaft gears and back hub gears. The former throw an undue strain on the belt when low gear is in use; the latter are of the epicyclic order, and if made small give trouble. Even when large they are by no means "fool-proof" (which the chain-driven gears are), and are still on their trial. I tried a 3½ h.p. belt-driven motor cycle last year, but alternately with a 3½ h.p. chain-driven—the former a 1907 magneto Triumph (single gear), the latter a 1907 magneto Phelon and Moore. The superiority of a two-speeder over a single gear for general utility converted me to two speeds and chain drive, and I sold the Triumph, which I have replaced with a second 1908 pattern magneto Phelon and Moore.

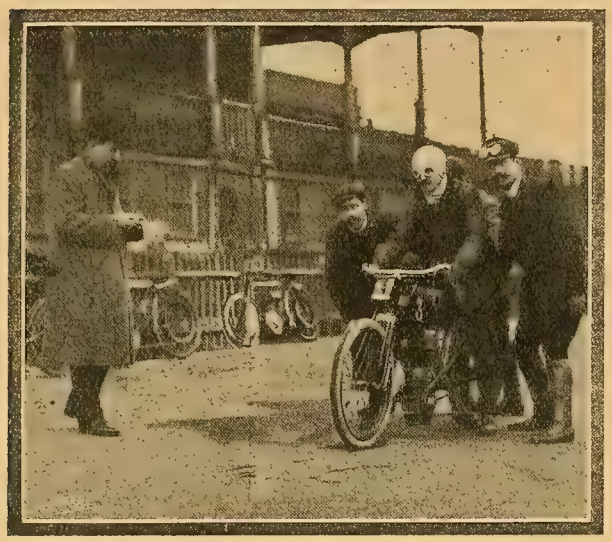
I began with gear-driven (Singer) promoted to chain-driven (Singer), from that I went to belt-driven (Triumph) for three years, and have resorted to chain-driven Phelon and Moore on account of the combination with two-speed gear, which, whatever may be the disadvantages of the chain, is, in my opinion, a combination to be preferred to a single gear with belt drive even for solo machines for hilly country and touring.



The Amac spray carburetter which was described in detail in our issue of Oct. 2nd, p. 777. The neat arrangement of the handle-bar levers, since devised in conjunction with the Bowden wire control, is clearly shown in the illustration.

Record Breaking at Canning Town.

ON Monday, the 13th inst., on the Canning Town Track Harry Martin, well known to old readers of *The Motor Cycle* as a consistent performer on motor cycles of various makes, but principally some few years back as the holder of several records and the winner of important races on the Excelsior machine, decided to make an attempt on the six hours' record made as far back as November



Harry Martin being started on his successful attempt on the six hours' record.

18th, 1902, by F. W. Chase at Crystal Palace Track (228 miles 250 yards). The record was handsomely beaten, as H. Martin rode 244 miles 1,650 yards in six hours. Records began to go at 101 miles, when Martin was 1m. 3s. inside record, and continued inside up to 120 miles, when he stopped to refill the tanks, etc. He was inside record again at 170 miles by no less than 11m. 59⅕s., and continued to improve on previous bests right up to the finish, the 200 miles record being beaten by 22m. 9⅕s.

At the start the weather was bitterly cold, with a strong N.E. wind blowing. Several storms of hail fell, and the conditions were very far from ideal from a record breaking point of view. Martin rode Collier's last year's Tourist Trophy 3½ h.p. Matchless-Jap with a single cylinder (85 by 76 mm.) and Brown and Barlow carburetter. The tyres used were Continentals, and it was not found necessary to change the front tyre at all, but the back wheel was changed once, merely as a precaution, as, from all appearances, the tyre was wearing very well. The rider stopped twice only in the six hours—the first time at 120 miles to refill tanks and change tyre, the second time at 213 miles to tighten the belt and have a rub down to restore circulation, the weather being so cold that he experienced con siderable difficulty in keeping warm. Our phc graphs will show that he was specially habited to re the temperature at high speeds, but nevertheless, ow to the inclemency of the weather, he suffered consid ably from cold.

It is interesting to note that the previous best Frer record was the one held by Anzani, who rode 220 mi 529 yards in six hours against Chase's 228 mi 250 yards of the previous year and Martin's pres record of 244 miles 1,650 yards. The machine with great regularity throughout, no troubles be experienced of any description beyond the tighten of the belt and the changing of the back wheel ab mentioned. Below will be found particulars of times every ten miles except when the rider was o side record, also some of the previous best perfo ances.

Mr. A. V. Ebblewhite, official timekeeper to Auto Cycle Union, R.A.C., etc., took the times.

Miles.	World's Records. H. Martin. H. M. S.	Previous Records. H. Martin, 13/9/06. H. M. S.
101 ...	2 15 21⅕	2 16 24⅕
110 ...	2 27 46⅕	2 35 48⅕
120 ...	2 41 32⅗	2 48 33
170 ...	3 59 4⅖	4 11 3⅗
180 ...	4 13 24⅕	4 23 0⅗
190 .	4 27 46⅘	4 35 33⅕
200 ..	4 42 3	5 4 12⅕

Miles.	World's Records. H. Martin. H. M. S.	Previ Recor F. W. Ch 18/11/0 H. M.
210 ...	4 56 23	5 30
220 ...	5 18 18	5 47
230 ...	5 34 45⅖	6 2
240 ...	5 52 40⅕	N
244 ...	5 58 43⅘	prev
245 ...	6 0 5	reco

HOUR DISTANCES.

Hours.	H. Martin, 13/4/06. Miles. Yds.	Previous best. Miles. Yds.	Holder.
4 ...	170 1,150	169 —	H. Martin, 13/9/06.
5 ..	212 800	199 —	H. Martin, 13/9/06.
6 ...	244 1,650	228 250	F. W. Chase, 18/11/

The 1908 edition of "Everything for the Motoris has been revised throughout and considerably enlarg It now comprises 120 pages, most of them cramn with illustrations. It would be a very strange acc sory that could not be obtained at Gamages. A c of the book referred to will be forwarded to any rea who applies to A. W. Gamage, Ltd., Publicity Depa ment, Holborn, London, E.C.

Tuning up operations prior to Martin's six hours' ride. He rode at an average speed of almost 41 miles per ho on a 3½ h.p. Matchless-Jap.

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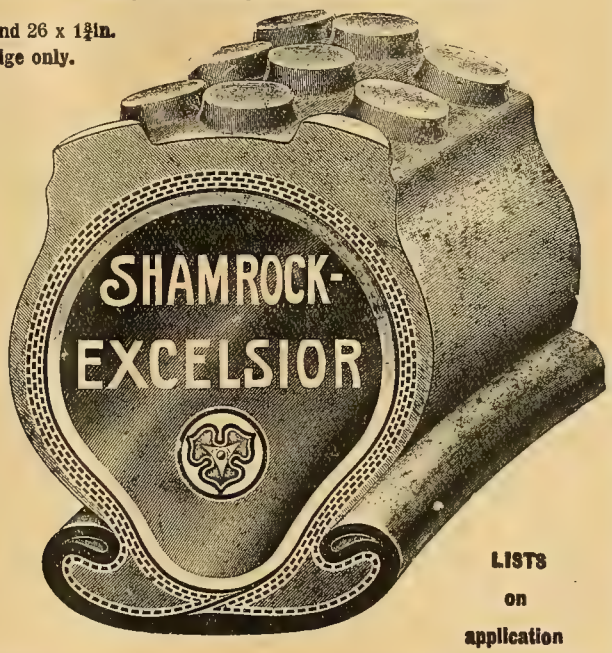
THE SUCCESS OF THE YEAR.
S.E. RUBBER STUDDED TYRES.

They give complete immunity from side-slip, do not slow the machine, and are the best value ever offered. They are incomparable with any other tyre.

All sizes 24 and 26in. made, and 26 x 1¾in. lightweight. Beaded Edge only.

When ordering, please state make of old cover or give particulars of your mount. We can fit almost all existing motor cycle rims.



Having the longest experience in the manufacture of belts constant improvements have made the S.G. Belt the recognised favourite. The 1908 S.G. stands unrivalled for flexibility and long service; unlike others, each S.G. Belt is made separately. The severest control is exercised to ensure the correct position of the canvas core, thus preventing twisting of the belt or causing premature defect, so common in the cheaper class of belts. S.G.'s are in favour everywhere; see that you get one. All sizes, ½, ¾, ⅞, 1in. made.

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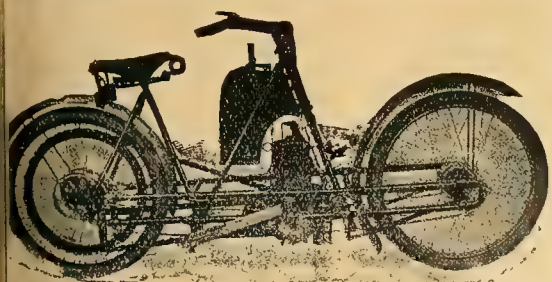
y make you believe that black is white—whilst he speaking—but **no amount of talking** will ever make a motor bicycle h rigid frame as free from vibration as a spring frame machine, scientifically designed, *i.e.*, not one with just spring forks or ing saddle pillar.

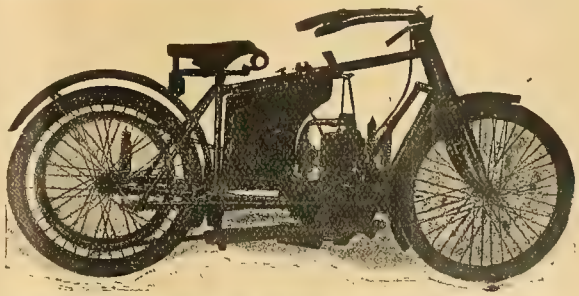
No amount of talking can render the ordinary design free from the nerve worrying risk of side-slip directly the ds get at all greasy.

No amount of talking will convince a practical engineer that the ordinary diamond-frame pattern, admittedly perfect push cycling, is the ideal pattern for a motor cycle with an extra 100 lb. or so of machinery, on which the road shocks countered are of an entirely different nature.

No amount of talking can possibly describe the general excellence—the marvellous comfort—the absolute luxury of two spring-frame machines shown below, about the many merits of which riders are unanimously enthusiastic.



THE ZENITH BICAR. 3½ h.p., Price 43 guineas nett cash.



"THE ZENETTE." Price 50 gns., including the marvellous "Gradua" gear.

The marvellous "Gradua" infinite change-speed gear gives any gear from free-engine to 3½ up to 1

"The Motor Cycle" (12th Feb.) says "We were delighted with the way the gear behaved on Muswell Hill. It started the machine from a ndstill and enabled the hill to be climbed without a falter."

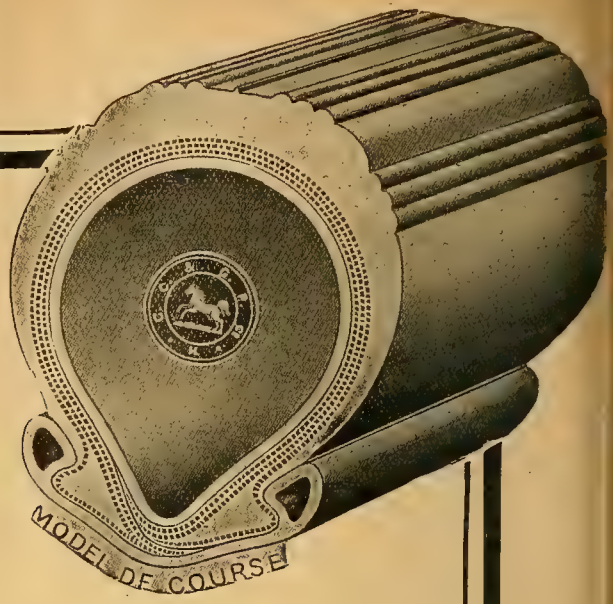
"The Motor Cycle" (19th Feb.) says of a "Zenette" fitted with this gear "During the time the machine was in our hands the gear did every ng which is claimed for it."

"The Motor Cycle" (8th April) says (re Cudham Hill Climb) re the "Zenette" (fitted with "Gradua") "though it came up slowly it did so good form, the variable gear working faultlessly."

"The Motor Cycle" (15th April) says: "It was the first time this variable gear had appeared in competition, and it behaved admirably. I am e that Barnes's performance impressed any prospective motor cyclists that may have been present, more than the wild rush of other machines ch leapt about on the uneven surface of the road in a manner calculated to frighten rather than please."

A "Zenette" fitted with Gradua gear is on view at The Service Co., Ltd. 292, High Holborn W.C.

ZENITH MOTORS, LTD., 101a, STROUD GREEN ROAD, LONDON, N. (Station—Finsbury Park.) Trial runs by appointment ONLY



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INSIST IF NECESSARY.

Their resilience absorbs road shocks and greatly minimises the evils of vibration.

Their strength makes them absolutely necessary for Tri-cars, Twins, and Fast Singles.

Their speed (the result of experience gained in the manufacture of highest grade tyres) draws forth praise from all devotees on the sporting side of motor cycling

Again we remark, you may have to insist on Continentals, but they're worth it.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(Continued from page 257.)

GEAR AND SPEED TABLE.

190. The subjoined table takes no account of wind resistance, frictional losses, tyre slip, etc. The actual road speeds mentioned would only be reached under the most favourable conditions; the higher the speed the greater are the losses from the above causes. To find what number of revolutions an engine is capable of, get two reliable men to time the machine over a measured distance on a calm day, when the engine is in perfect tune. The formula $\frac{D \times G}{W \times T}$ will then give the actual engine speed attained in revolutions per minute, when D is the distance covered in feet), G the number of revolutions the engine makes to each revolution of the back wheel, W the exact circumference of the back wheel (in feet) measured over the tyre tread, and T the time (in minutes) taken to cover the distance, *e.g.*, a machine does a measured mile in three minutes, being geared 5 to 1, with a rear wheel measuring 7ft. in circumference over the tyre tread. The formula is—

5280 (distance covered in feet) × 5 no. of engins revs. per each wheel rev.

7 (circumference of wheel in feet) × 3 (time in minutes).

Or

$$\frac{5280 \times 5}{7 \times 3}$$

Or

1,257 revolutions per minute.

In actual road practice, with a good engine, 2,500 revolutions per minute is very high speed.

Revolutions of engine 2,000 per minute.

Gear.	Speed with 26in. wheel. m.p.h.	Speed with 28in. wheel.
3 to 1	51.5	55.5
3½ to 1	44.2	47.6
4 to 1	38.6	41.6
4½ to 1	34.3	37.0
5 to 1	30.9	33.3
5½ to 1	28.1	29.6
6 to 1	25.7	27.7
6½ to 1	23.8	25.6
7 to 1	22.1	23.8
7½ to 1	20.5	22.2
8 to 1	19.3	20.8
8½ to 1	18.2	19.6

The above table was published in *The Motor Cycle*, May 8th, 1905.

Goggles.

GENERAL.

191. The accessory makers grow rich by the goggles we break, just as a firm at Norwich is said to thrive on the mustard we leave. Every pair of goggles should therefore be provided with a case—not necessarily a portmanteau. Its lenses should be optically correct, or much damage may be done to the sight. They should not, as is customary, be nipped into place between two sheets of celluloid, which will spring and drop them, but be properly held in spring metal-grooved frames with screw fastenings

GOGGLES WORN WITH PINCE-NEZ OR SPECTACLES.

192. The best plan is to choose a deep barrelled type of goggle, such as the Paris-Vienna, and to wear it over ordinary glasses.

MISTED GOGGLES.

193. A good cure is to wipe the glasses with yellow soap, and then polish with handkerchief, or to clean them with a little alcohol, in which some glycerine has been dissolved. I find myself that the air draught keeps mist off the goggles so long as the machine is in motion, and the condensation only occurs when it is at rest. Therefore, if the goggles are lifted on to the cap at each stoppage, and not replaced over the eyes till the restarted machine has travelled a few hundred yards, no inconvenience whatever from this cause will be noticeable.

GRADOMETER.

194. A great deal of fun may be had by fitting a gradometer to the top tube of a motor bicycle. Owing to the short wheelbase and narrow gauge of a motor bicycle, the results do not compare in accuracy with regular surveys, but they are sufficiently correct to be instructive. Place the machine on a plank which has been carefully laid dead flat with the aid of a spirit level. Procure a small piece of wood, having three flat sides and one curved hollow to fit tube, the edges of the curved side being made of a suitable shape to fit the tank top, and prevent the wood turning sideways. Lay the wood on the top tube, and with a spirit level adjust the top surface till dead level. Clip it to top tube with steel bands, and screw gradometer thereto.

GUARANTEED ACCESSORIES.

195. Always take advantage of the maker's responsibility for the more expensive accessories, sparking plugs, inner tubes, etc. If a guaranteed accessory fails within a reasonable distance the makers will meet the purchaser. One rider of my acquaintance has not bought a new sparking plug for three years through strictness in this matter. Others spend pounds on them.

HOUSING MOTOR CYCLES.

196. Because an inspection pit is unsuited to bicycles and tricars, it does not follow a plain shed is the best garage for them. Backache is the chief drawback to cleaning, repairs, or adjustments. A motor bicycle shed should therefore have a platform to stand machine on, 6ft. long, 2ft. wide, 1ft. 6in. high, approached by an inclined plane, and having two hooks set in the beams overhead, carrying ropes and pulleys.

The best tricar house I have seen was dug out all over to a depth of 18in., and had three rails fitted with check edges and end chocks running across 18in. from the floor.

A motor bicycle may be safely kept in the hall if the petrol tap be closed and does not leak, and if a plug be put in the air vent of stopper to tank. But inform the insurance people.

IGNITION IN SPEED EVENTS.

197. Pending scientific experiments it is generally considered that a plain coil with accumulators and make and break contact, or the high tension magneto, give about equal engine speeds, the trembler coil with wipe contact being hopelessly slower. Some assert that the trembler coil in conjunction with a make and break contact gives the best firing on a hill when the engine slows down a little. But as few hills can slow the modern motor bicycle perceptibly, taking a flying start and in good tune, either the make and break with plain coil, or else the high tension magneto, should be invariably used.

INSURANCE.

198. Insurance is expensive, and forms an over large item in the modest finances of a motor cyclist. The prudent rider will insure against third party risks, as these may be cast upon one by the fault of others and a coroner's jury, and the expense may be very heavy. An insurance policy should be chosen which does not contain a speed limit clause.

JACKS.

199. The lightest jacks are convenient for tricars, quadcars, and sidecars, and if metal ones of normal type are employed, the base should be perforated, so that the jack may be carried upright on the footboard, and attached thereto by a couple of long screws. Ladies object to the jack being carried loose on the front seat. On very light passenger machines use a piece of half inch deal, 16in. by 3in., with a notch to carry axle in one end; to the other end fix a 6in. length of ½in. deal at right angles, girded with light angle irons. This is cheaper and lighter than any jack, and can be easily strapped to some part of the machine.

LICENSES.

200. The Inland Revenue license (carriage tax) must be bought within twenty-one days of first putting machine on road in each year. It expires on December 31st. If bought on or after October 1st only 7s. 6d. Otherwise, 15s.

The driving license runs a full twelve months, *e.g.*, from March 17th, 1908, to March 16th, 1909. It should be carried in the toolbag or accumulator box, as any constable has the power to demand it. Cost 5s.

The fee for numbers is 5s. Numbers are not transferable from one machine to another in the same ownership, nor from the same machine in one ownership to another ownership when sold. When buying an already registered machine, notify the purchase to the registering authority, when the number can be transferred to you for 1s. When selling a registered machine notify the authorities, or any offences of the new owner may be charged to you.

(To be continued.)

QUESTIONS & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not **must be accompanied with a stamped addressed envelope for reply.**

Power for Passenger Work.

Would a 3½ h.p. Rex fitted with two-speed gear be sufficient to take sidecar and climb most hills? I presume it would so long as the right ratio of gearing is used. Weight of passengers twenty-two stones. Would 5 to 1 high speed and 10 to 1 low speed be about right? Then am I right in understanding that the trouble likely to arise with such a combination is engine heating, owing to reduced road speed, increased load, etc.? If so, is a fan a really satisfactory means of preventing this? Is it worth the power required to drive same, or would careful driving keep me free of this trouble?—P.K., Aberdeen.

A 3½ h.p. with two-speed gear would work well in fairly level country, that is to say, it would take you up a hill of about 1 in 8 to 1 in 10. If you drive carefully we do not think you will be troubled by over-heating. If, however, you are, you will find that a fan will be of service.

Overheating of Tricar Engine.

My engine, a twin-cylinder Kerry on a tricar, with Phœnix two-speed gear, gets very hot. It is air-cooled with two fans, one to each cylinder. There is a large gap between the exhaust valve stem and the tappet—¼in. or more. If I lengthen the exhaust valve stem the springs will be too weak. I presume this is the cause of overheating, as everything else seems perfect. Extra air is sufficient to slow engine, also to stop firing. Can you advise a remedy?—BY 655.

We recommend you to attend to the following points to cure the overheating trouble. Dismount the cylinders and clean cylinder heads and pistons from all carbon deposit, see that the gaps between the exhaust valve stems and tappets do not exceed 1-32in. If you lengthen the exhaust valve stem and leave cotter slot in old position it will have no effect whatever upon the spring. Examine the exhaust cams to make sure they are not worn. Fit new exhaust springs if the springs have become weak through heat, and see that the inlet valve springs have both the same tension, and the valves the same amount of opening. Do not fail to lubricate freely with the best oil.

Concerning Carburetter Adjustment.

(1.) What is the cause of petrol blowing out of carburetter when engine is working, also how to remedy it? (2.) Can you tell me how to raise or lower the level of petrol in jet of carburetter (Brown and Barlow)? (3.) Could you forward me any back numbers of *The Motor Cycle* explaining how to adjust the carburetter?—S.S., Newcastle.

(1.) Probably the level of petrol is too high in the jet, or there is a blow-back past the inlet valve. This cannot be entirely prevented, but if inlet valve spring is too weak it becomes excessive. (2.) On the needle valve is a grooved weight in which the balance-weighted levers rest. To lower the level of the petrol this should be moved further away from the point of the needle. The weight is usually a driving fit on the needle, and the latter can be tapped through. (3.) An article on this subject will appear in the new edition of "Motor Cycles and How to Manage Them," which will be ready shortly.

H. A. Collier, a Brooklands competitor, on the 3½ h.p. Matchless used by Harry Martin in creating new records last week.

Exhaust Valve Seating Cracked.

I have a second-hand M.M engine (85 mm. by 85 m water-cooled), in the exha valve seating of which th is a small crack, which late owner informs me has alw been there. I have tested it w paraffin and find that it leaks co pression, and I shall be obliged if will kindly tell me the best thing do to stop it up.—H.C., Liverpo

We are afraid you can do nothing w the crack, as we have been making quiries of people who have made speciality of repairing cracked cy ders, and they tell us that nothing be done with defects of this kind.

Various Interesting Queries.

(1.) In altering the gear from, say, 4½ to 1 to 3 to 1 it best to do it by getting larger engine pulley or by us the same engine pulley and g ting a smaller belt rim? In which stance will the most power be lost friction? (2.) Have you ever he of any serious accident being cau by any of the auxiliary spring fo (such as are at present sold) bre ing? From some of the adverti illustrations the metal looks v thin. (3.) Should not a twin-cylin bicycle have less chance of skidd than a single cylinder one of the sa power, owing to the more frequ power strokes from each piston? there will not be so much je motion on the driving wheel with twin. (4.) Is magneto ignition as liable with a twin-cylinder as single? I notice some makers use standard the magneto for th singles, but only supply it to spe order for their twins.—C.H., Bradford.

(1.) The gear is best altered by incre ing the size of the engine pulley, as belt obtains a better grip of the pull (2.) We do not remember having he of any serious accident happening fr the breaking of spring forks. (3.) Y a twin-cylinder should skid less tha single-cylinder machine of equal cyl der capacity. (4.) Quite as reliab we do not know the reason why so makers only supply it to special or for twin-cylinder machines, but the f remains that a magneto can be fitted any twin-cylinder engine.

A WORD IN SEASON.

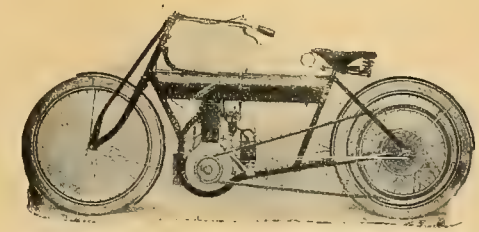
In or out of season you want your machine for comfort and for convenience. You want to be free from care.

The ROC answers these requirements simply because its recognised perfect clutch and ROC speed gear make it "a car on two wheels."

The ROC with its duplex frame and tanks is built on sensible lines. You sit with feet resting firmly on the ground. You can start from standstill on any gradient and turn in any road. You set machine in motion by an easy hand turn from the live back axle.

The ROC system is obviously ahead in these ideas. It is what you want.

"All about the ROC." Descriptive booklet now ready.



Royal ROC 4 h.p., with ball-bearing engine, new military model, clutch and speed gear, hand starting, 48 gns.

A. W. WALL, LTD., Roc Motor Cycle Works, BIRMINGHAM.

London Agents: THE SERVICE CO., 292, High Holborn, W.C.

FOR COMFORT. **FOR SAFETY.** **FOR SOCIABILITY.** **FOR QUALITY.**

AND

FOR TOURING

A Chater Lea Sidecar will take some beating. It can be adapted to fit any machine and fitted on right or left side. We have a few in stock to fit our own and a few other makes.

In preparing for your tour do not overlook The Chater Lea Patent

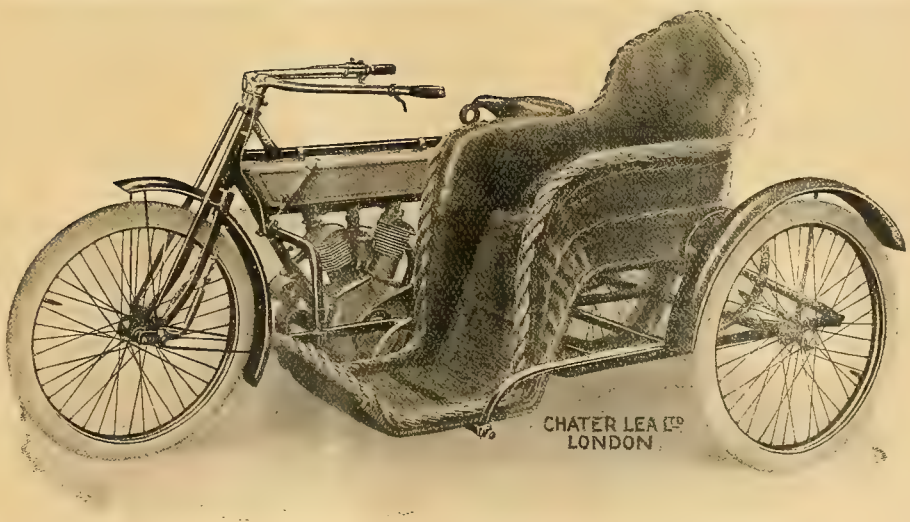
TERMINAL EYES,

BELT PUNCH,

and

THUMBSLIDES

(for Handle-bar control), and other small fitments.



Chater Lea Motor Cycle (Twin Cylinder Engine), fitted with Chater Lea Sidecar.

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Particulars, retail prices, and any desired information gladly sent on request.
Illustrated Handbook post free.

Works—114-120, GOLDEN LANE, LONDON, E.C.

In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

10,000 miles without a puncture!

41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

THE PALMER TYRE, LTD., 119, SHAFTESBURY AVENUE, W.C. Nov. 1st, 1907

Gentlemen,—I have pleasure in forwarding you herewith a 2¼in. Palmer Cord Motor Cycle Cover and Tube which has now done nearly 10,000 miles, and as you will see, is as good as ever.

I fitted it to the front wheel of my motor cycle in May, 1906, and took it off to-day to see what it was like inside.

It has only once been touched with the pump since fitted, and has never been punctured.

It has carried me safely through many important competitions, including A.C.C. Land's End to John-o'-Groat's Trial, 1906; London to Plymouth; and six days' trial, 1907; M.C.C. London to Edinburgh, 1907, and also several long tours.

The ribs are not worn much, and both cover and tube look like being good enough for next season.

Yours faithfully, H. GILLARD COVE.

The Longevity of Palmer Motor Cycle Tyres

becomes more than a mere statemen: in face of the above experience; it is a fact!

Write for our Manual, gratis and post free.

THE PALMER TYRE, LTD.,

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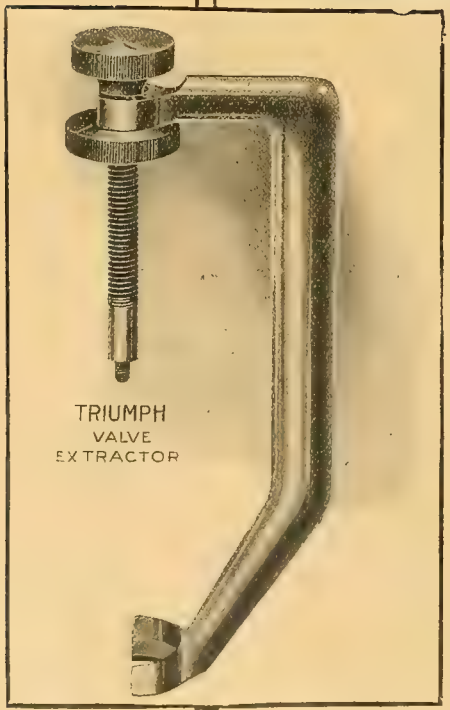
Of Importance TO Riders of '07 Triumphs



Although it is not our custom to supply accessories direct to the public, we feel it our duty to riders of our machines to call their attention to the exceedingly handy and compact device we have brought out for **quick removal of the valves** of our engines. We strongly recommend every rider of the '07 Triumph to purchase one of these neat and beautifully finished little tools; and to facilitate delivery **we will send you** one on receipt of postal order for 5/3.

WRITE now to the

Triumph Cycle Co., Ltd., Coventry.

Overheating and Loss of Power.

My motor cycle (a 3½ h.p. Brown, magneto) overheats badly, and is not strong on hills. When I stop, smoke issues from extra air inlet of uretter. Have had engine down cleaned, ground valves, also tried ous adjustments in carburetter little improvement. I have read the articles on overheating with rest, but they do not seem to help case. Would stronger springs to es be of any good?—F.T., Kent.

ly a smaller jet might help you, would be a good plan to check vel of the petrol. Be careful to a good brand of oil and use of it. You do not mention which ou are using, which might have us. If the valve springs are it is, of course, desirable that they be renewed. Are you sure that achine is not overgeared for your ? Smoke usually issues from air inlet of carburetter of all nes when at rest immediately run, and inlet valve is raised.

Respecting a Wipe Contact-Maker.

Having been troubled by misfiring due to sparking at the contact maker, which is of the usual wipe pattern, I beg your aid as to a cure. The ex- g pieces consist of a fibre com- itor with brass segment, and the e with a case-hardened knob. hardening has fused through. the mild steel is now making act, and much sparking occurs. t is the best combination of ls for this important function? rpose re-hardening the existing , but if a more suitable metal prevent a recurrence of the ole I shall be greatly obliged for information.—C.G.K., Glasgow.

ouble may be cured by fitting a lade, and be prevented in future ng the contact breaker case with grease to prevent sparking. We know of more suitable metals those you have in use. It is and advisable to carry a spare

Electric or Acetylene Headlights.

(1.) Do you know anything of the Osram electric bulb, whether it is reliable for the purposes of a headlight on a motor bicycle? (2.) The makers ribe the 8 volt accumulator sold the lamp as of about eight 's capacity. Does this mean t hours continuous light? (3.) you advise the purchase of such mp in preference to an acetylene tlight, and if so should I find tricity as reliable as acetylene (4.) I do very little night rid- so would dry batteries be pre- ble to accumulators to save ex- e of charging?—A.H.W., Can- ury.

n electric bulb in a good lamp a very fair light, but is not equal tylene. It is an advantage to be o switch on at any time without nting, however, and for intermit- se for short distances it saves ouble of constantly cleaning out the gas generator. (2.) Yes, doubtless the accumulator would give a current for about eight hours continuously. (3.) Personally, we prefer an acetylene lamp, but you must put the pros and cons together and decide which suits your particular requirements the better. (4.) Dry batteries would not last long. Accumulators must be used, as the former are only suitable for intermittent work.

Commencing Motor Cycling.

[?] I am considering the purchase of a motor cycle, and at times I intend using a sidecar with it, and should be glad to have your valuable advice in the selection of a machine. I am a novice at motor cycling, but a rider of above twenty years of the pedal bicycle. (1.) What h.p. would be required to take sidecar up hills without pedalling? (2.) What kind of engine do you advise for the use of motor cycle by itself, and also with sidecar? (3.) Belt or chain

C. R. Collier on his old International Cup Racer. This was the machine he rode at Brooklands on Easter Monday.

drive? (4.) Lowest speed with whatever engine you mention? (5.) Cost of petrol and lubricating oil per 100 miles? (6.) Cost of petrol and lubricating oil per 100 miles with sidecar? (7.) Is there an extra license for sidecar, and if more for the Lowen sidecar, which has two wheels? (8.) Is magneto ignition best?—W.H.R., Merton.

(1.) The minimum horse-power for sidecar work would be 3½ with two-speed gear. (2.) If you care to send us a numbered list of the engines which you think would suit you, keeping a copy by you for reference, we will place them in order of merit. The same remarks apply to advice with regard to the purchase of a machine. (3.) If you intend to use a sidecar a great deal, chain drive would be better. (4.) Most engines will slow down to about six miles an hour on level roads. (5 and 6.) About 1s. 6d. and 2s. respectively. (7.) There is no extra license for the ordinary type of sidecar. If, however, the latter has two wheels the whole combination must be registered as a motor car. (8.) If cost is no object, magneto ignition is preferable.

Current Consumption of Coil.

[?] I have a trembler coil, used with make and break contact breaker, which uses what I think to be an excessive quantity of current, *i.e.*, it runs a 15. ampère 4 volt accumulator down in about 120 miles. Single cylinder engine of 2¼ h.p. My previous trembler coil would work for about three times the distance from exactly the same accumulator. Would a fine insulated wire resistance, say gauge 30—I could gauge the length—save current and still be efficient?—J.R., Birkenhead.

Either the coil is abnormally extravagant or the trouble lies in the accumulator itself, which is suffering from an internal short circuit. Do you find that accumulator runs down automatically if it is not connected up when out of the machine? If it does, the trouble we have suggested is undoubtedly the case, and the only alternative is to send it to the makers to be repaired. You will find that you can improve the consumption of the coil somewhat by adjusting the trembler slightly, that is to say, enough to make a good contact without causing misfiring, but not too firmly. A resistance will not save the current but will waste it. If the trouble is in the coil it is probably due to the condenser being out of order.

READERS' REPLIES.

Permit me to thank you, and also your correspondent A. D. Walker and others, for the trouble taken over my query *re* Phœnix Trimo. Besides local friends, a reader of your paper in Wesel, Germany, also wrote to try and help me, but were all unable to do so. I have, however, at last found out my fault, and it has not occurred again. When I bought my Phœnix Trimo some years ago there was a funnel fastened on to the bottom air intake of the carburetter through which hot air was drawn from the cylinder. This, after doing duty over 18,000 miles, came off, and in my wisdom I decided it was no good, so did not replace it. The carburetter then got all cold air, with the result that either the carburetter or pipe to inlet became frozen. Since I have replaced the pipe I have had no more trouble. I can recommend the Phœnix idea of soldering up the slots of the jet and boring only one hole in centre, as in the above distance I have never yet had the nipple stop up.—A.M.

"THE AUTOCAR" contains each week much interesting information which, although written in regard to motor cars, is also applicable to tricars and motor bicycles. It is published weekly, price 3d., and can be obtained from all newsagents and bookstalls.

The Motor Cyclists' Ideal.

The result of our plebiscite we expect to be able to publish in the special spring number of *The Motor Cycle*, dated May 6th. This will make the special issue doubly attractive, and copies of this number should be ordered early.

Coming Events.

Permits have been granted by the Auto Cycle Union for the following events: Open Hill-climb, April 25th, Herts County A.C. S. J. Ellis, 40, High Street, Watford.—Open Hill-climb, May 9th, Essex M.C. H. Fuller, Wyndale Road, Woodford.—Motor Cycle Races, Whit-Monday, St. Albans. A. F. Slater, 1, Bedford Park Road, St. Albans. Full particulars may be obtained of these events by writing to the respective secretaries.

The Motor Union and Level Crossings.

The Motor Union opposed the confirmation by the Board of Trade of the Barton-Immingham Light Railway Order as proposed by the Light Railway Commissioners. The draft order authorised an important main road to be crossed on the level. The Board of Trade have now officially informed the Motor Union under date April 10th, "That they have decided to require the promoters to provide a bridge in lieu of the proposed level-crossing of the road numbered on the plan 64 in the parish of Barrow-on-Humber." In view of the many complaints received as to the dangers, delays, and inconveniences occasioned by level crossings, it has been determined to oppose the construction of any more level crossings in important thoroughfares.

Always Carry Goggles.

A pair of goggles should always be carried ready for wearing if necessary. Even after two days of fine weather the dust becomes very pronounced, and at this time of the year the wind is occasionally biting, and after a long ride without goggles makes the eyes ache. Driving against rain and wind is almost impossible unless goggles are worn.

Well-known Motor Cyclist Married.

A well-known motor cyclist was married on Wednesday, April 22nd, at Holy Trinity Church, Northwood, Middlesex, in the person of Mr. B. H. Davies, who is well-known both as a contributor to *The Motor Cycle* and rider. His bride was Miss Frances Helen Hodgkinson, daughter of the late Lieut. C. F. T. Hodgkinson, R.N., and of Mrs. Dent, Reisterstown, Maryland, U.S.A. The ceremony was performed by the Rev. R. F. Dale, of Keble College, Oxford, assisted by Canon Hodgkinson, of Lincoln, the Rev. H. Davies, of Durham, and the Rev. E. B. Backhouse, vicar of Northwood. A reception was afterwards held at Northwood Hall, the residence of the bride's grandmother, Mrs. Pickersgill-Cunliffe, and the newly married pair left for the South Coast in the afternoon. The bridegroom has secured many motor cycling awards, including the longest authenticated ride in six consecutive days, and Edinburgh and End-to-end medals, while last year he won first awards at the A.C.U. Annual and M.C.C. Members' Hill-climbs. We understand Mr. and Mrs. Davies will probably compete in the End-to-end ride on a passenger motor cycle.

The Late Michel Werner.

We regret to record the dea Monte Carlo of Monsieur M Werner, one of the original par in the late firm of Werner F Paris, the originators of the W motor bicycle. Monsieur We brother died about three years ag

Motor Cycling for Health.

We are very pleased to be ab state that our medical readers taken up the above subject very e siastically, and the many do opinions of motor cycling will this feature (to be included i special issue of May 6th) not the interesting.

The London-Edinburgh Run.

Intending competitors in the L to Edinburgh Run who are not a members of the Motor Cycling should communicate with Mr Candler, 1, Lime Grove, Shep Bush, London, W., and not Mr. Fry, the assistant trials hon. sec

Signposting Watling Street.

The R.A.C. has decided to pre ward the signposting of W Street. The secretary, in his r report, says the road is in ex condition. We venture to diff any rate with regard to portions route. It is good from Welling Gailey, with the exception o George's, which can be avoided, and loose through Brownhills, lumpy near Wilnecote, and a far appears to enjoy the use of the way just south of High Cross. road would make a splendid t route from London to the Welsh if it was repaired where necessar

Competitors in the Brighton and District Motor Cycling Club's Hill-climbing Competition.

Policeman Stops a Climb!

A dreadful occurrence took place on Westcombe Hill, Blackheath, the other day, where Laurence Mounter, of Westcombe Park, steered a motor cycle straight towards a policeman. At the Greenwich Court, where Mr. Mounter appeared on the charge of driving a motor cycle in a manner dangerous, etc., P.C. Yorke, 642 R, said that defendant nearly collided with his bicycle, and he fell in consequence. The magistrate (Mr. Hutton): "Then he upset the law." (Laughter.) Witness: "Yes, sir." Defendant, who said that his machine was incapable of doing twenty miles an hour—he actually had to get off and push it up-hill—was fined 20s. and 2s. costs.

Road Warning.

We are informed by a local reader that motor cyclists will do well to drive carefully in the Boroughbridge district. Boroughbridge is on the main London to Edinburgh Road, situated north of Wetherby.

Police Trap in the I.O.W.

A resident in the Isle of Wight writes that there is a police trap on the road from Ryde to Newport, at the top of Wootton Hill. The trap is set at the foot of a hill which tempts motor cyclists to accelerate speed to climb it satisfactorily.

Speed Limit in Belfast Refused.

In a letter to the Town Clerk, Belfast, the Local Government Board has refused to grant a speed limit on motor cycles and cars in the City of Belfast. The application for a ten miles speed limit was made a month or two ago.

Race Meeting at Canning Town.

About 3,000 spectators witnessed the race meeting held on the Canning Town track on Good Friday. C. R. Collier and H. V. Colver, both riding powerful Matchless machines, had what might be termed a rubber in matches. This consisted of a mile race, a three miles race, and a five miles pursuit race. Collier easily won the mile event in 1m. 27⅘s. The three miles match proved far more exciting. The two competitors kept together practically the whole way, but gaining slightly towards the finish Colver finished three seconds ahead in 3m. 42⅖s. The five miles pursuit race was also a very evenly contested event, and for some time neither gained any appreciable lead. Collier, however, gradually gained, and finished 1⅕s. ahead in 6m. 4⅕s. Thus the rubber went to Collier with two events to one. An interesting item was the five miles race for touring machines, with engines not exceeding the equivalent of 90 by 90, 26in. wheels, and geared at not more than 4 to 1. F. E. Barker, 2¾ h.p. Rex, won in 7m. 20⅘s., H. A. Collier, 3½ h.p. Matchless, followed a short distance behind, and H. V. Colver, 3½ h.p. Matchless, made a good third.

High Speeds on 2¾ h.p. Machines.

The five miles handicap for machines with engines not exceeding 76 by 76, was won by H. V. Colver (Matchless), 5s. start, rather easily in 5m. 52⅘s. H. A. Collier (Matchless) was second, and C. E. Bennett (Mansfield) third. C. E. Bennett won the five miles scratch race for 76 by 76 engines rather comfortably in 5m 55⅕s. Getting a good start he increased his advantage and won from C. R. Collier by 300 yards. H. V. Colver was third about 100 yards behind Collier. H. V. Colver made an attempt on the ten miles world's record, but he never attained the necessary speed, and finished 31s. behind record time in 11m. 55⅗s. Barker, who rode in the tourist handicap is known as the grass track rider.

FUTURE EVENTS.

April 25—Hertfordshire County A.C. Open Hill-climb for Motor Cycles.
,, 29—A.C.U. Quarterly Trial.
May 2—M.C.C. Members' Hill-climb.
,, 6—"The Motor Cycle" Special Spring Number.
,, 9—Brooklands Motor Races.
,, 9—Essex M.C. Open Hill-climb.
,, 12-18—Auto Cycle Club of France Reliability Trials.
,, 16—A.C.U. Annual Hill-climb.
June 5-8—M.C.C. LONDON-EDINBURGH RUN and return for Schulte Cup Competition, and special cup for motor-bicyclists.
,, 27—M.C.C. Inter-team Trials for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., and Birmingham M.C.C.
,, ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
,, 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
,, 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.
Aug. 8—Essex M.C. Open Race Meeting at the Stadium, Shepherd's Bush, W.

F. E. Barker (2¾ h.p. Rex) winner of the Five Miles Tourist Handicap at Canning Town on Good Friday last. Time, 7m. 20⅘s.

A Hill-climb in South Australia.

A hill-climbing contest held on the 14th ult. at Melbourne, South Australia, resulted as follows: 1, C. D. Sheppard, 3 h.p. N.S.U., 9m. 53s., 26.31 points. 2, W. Crowle, 3 h.p. N.S.U., 9m. 28s., 25.53 points. 3, H Behrens, 3 h.p. N.S.U., 10m. 12s., 25.41 points. 4, N. Jackson, 3 h.p. Lewis, 9m. 40s., 24.14 points. 5, A. E. Lykke, 3 h.p. Lewis, 11m. 58s., 22.90 points. 6, C. Richards, 3 h.p. N.S.U., 11m. 49s. 7, D. Fulton, 4 h.p. F.N., 11m. 49s. 8, F. H. Taylor, 2¾ h.p. Minerva, 14m. 18s. 9, V. F. Hall. 3 h.p. Rover, 11m. 26s.

The M.C.C. London—Edinburgh Run.

We exceedingly regret that through a misinterpretation of a paragraph in the programme of the M.C.C. London-Edinburgh run we published a paragraph last week which would lead our readers to believe that Mrs. Claude Marshall, who is kindly entertaining the competitors in the above event to breakfast as her guests at the George Hotel, Grantham, is the proprietress of the hotel. We hasten to inform our readers that Mrs. Claude Marshall has nothing to do with the George at Grantham, and is one of the lady members of the M.C.C., and the wife of the ex-Trials hon. sec. We apologise both to Mr. and Mrs. Marshall and the other members of the Motor Cycling Club for this very regrettable error.

Useless Advertising.

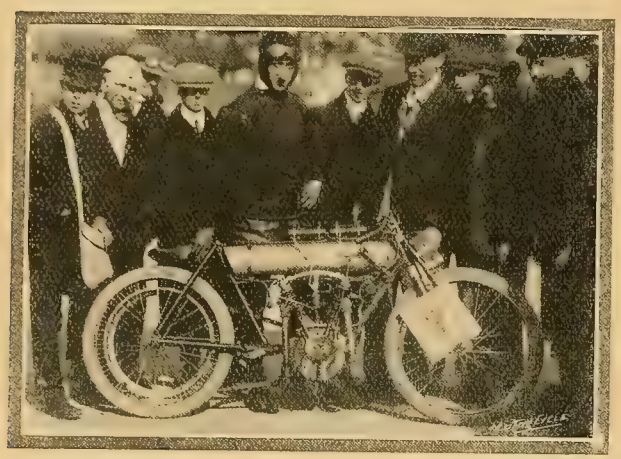
As an instance of the nuisance occasioned by the delivery of circulars and catalogues, one of our staff received by post on the 15th inst. four circulars in separately stamped envelopes bearing the same address, and all containing the same matter, which related to a book on touring in Wales. There were several others by the same post from other sources, but the four above-mentioned prove the useless waste of postage stamps and printed matter by some firms on what can only be styled useless advertising.

Motor Cycles in Germany.

At the beginning of the current year the various German States possessed 19,573 motor cycles for the conveyance of persons, and 235 for the transport of goods. The figures for January 1st, 1907, were 15,700 and 254 respectively. It is interesting to learn how the cycles were distributed. Prussia alone owned 10,588, Berlin's share was 394 of the 10,588. Bavaria possessed 2,772, Saxony 1,888, Wurtemberg 857, Baden 834, Hesse 396, Mecklenburg-Schwerin 191, the Grand Duchy of Saxony 93, Mecklenberg Strelitz 24, Oldenburg 200, Brunswick 169, Saxe-Meiningen 53, Saxe-Altenburg 63, Saxe-Coburg-Gotha 45, Anhalt 141, Schwarzburg-Sonderhausen 20, Schwarzburg-Rudolstadt 19, Waldeck 22, Reuss (Senior line) 9, Reuss (Junior line) 36, Schaumburg-Lippe 3, Lippe 25, Lübeck 33, Bremen 64, Hamburg 227, and Alsace-Lorraine 800. There are 169 commercial motor cycles in Prussia.

First Motor Cycle Race at Brooklands.

ON Easter Monday motor cyclists had an opportunity of trying their mounts for the first time in open competition on the famous track at Brooklands. The racing was confined to one event, viz., a five and a half miles race, the entrant of the winner to receive 20 sovs. or a cup at his option,



W. Cook (7-9 N.L.G. Peugeot), winner of the motor cycle race at Brooklands. His speed for about 5½ miles was equal to 63 miles an hour.

and the entrant of the second 5 sovs. or a medal at his option. For motor bicycles of which the engines, if twin-cylinder, do not exceed 80 mm. by 98 mm. for each cylinder. No less than twenty-four entries were obtained. The remaining five events were all for motor cars, and will be fully dealt with in *The Autocar* for the 25th inst.

Competitors in Order of Finishing.

Entrant, rider, and machine.	Bore.	Stroke.
Mr. A. G. Forster (W. Cook), 7-9 h.p. N.L.G.-Peugeot	80	98*
Mr. E. Kickham (owner), 7 h.p. Leader-Peugeot	80	98*
Mr. C. R. Collier (owner), 6 h.p. Matchless-J.A.P.	76	95*
Mr. W. G. McMinnies (owner), 3½ h.p. Triumph	84	86
Mr. W. H. Wells (owner), 5 h.p. Vindec Special	75	76*
Mr. G. Schink (M. Geiger), 6 h.p. N.S.U.	75	90*
Mr. H. Bashall (J. H. Slaughter), 3½ h.p. Triumph	84	86
Mr. J. C. Davis (owner), 5½ h.p. Rex	76	81*
Mr. E. C. W. FitzHerbert (owner), 6 h.p. F.N.	50	57†
Mr. F. W. Applebee (owner), 5 h.p. Rex	76	80*
Mr. H. Reed (owner), 7 h.p. Dot-Peugeot	80	98*
Mr. O. L. Bickford (owner), 5 h.p. Vindec Special	75	76*
Mr. H. A. Collier (owner), 3½ h.p. Matchless-J.A.P.	85	76
Mr. H. A. Cooper (owner), 3½ h.p. Triumph	84	86
Mr. H. Shanks (owner), 2¾ h.p. Chater Lea	75	75
Mr. E. Gwynne (owner), 5 h.p. Vindec Special	75	76*

Others who did not finish or were so far behind that they were not recorded:

Mr. W. W. Genn (owner), 7-8 h.p. Minerva	80	85*
Mr. A. G. Reynolds (owner), Vindec Special	75	76*
Mr. W. Pollard (owner), 3½ h.p. Chater Lea	81	88
Mr. F. Toman (owner), 4½ h.p. Laurin and Klement	75	85*
Mr. G. Lee Evans (owner), 3½ h.p. Rex	3¼in.	3½in.
Mr. C. Hurford (G. Adams), 6 h.p. Griffon	75	80*
Mr. J. B. Hanafin (owner), 5 h.p. Vindec Special	75	76*
Mr. O. C. Godfrey (owner), 5 h.p. Rex	3in.	3 9/64 in.*

* Twin-cylinder. † Four-cylinder.

Brooklands Motor Cycle Race. Competitors and their machines in the paddock.

Although only twenty-one numbers were put up on the indicator board when the bell rang, the full number of entrants were on parade. The rushing past of such a large number of machines at fast speed created considerable enthusiasm among the spectators.

All the riders were started together, and, after one or two failures to get the engines going, W. Cook (7-9 h.p. N.L.G.-Peugeot) got away finely, and had a good lead at the members' bridge, about one-third of a mile from the start. He continued to forge ahead,

First Motor Cycle Race at Brooklands.—

and never looked like being challenged, and on coming to the fork to start on the last lap he had about one-third of a mile lead. Ultimately he ran in an easy winner by about five-eighths of a mile. The third man, C. R. Collier (6 h.p. Matchless-Jap), was about one hundred yards behind the second, E. Kickham (7 h.p. Leader-Peugeot, a machine fitted with an engine of the same size as the winner's). The winner's speed was sixty-three miles per hour, and his machine was fitted with a gear ratio of 2⅝ to 1.

He stated to our representative that he rode thirty miles outright on the Tuesday before the race at an average speed of sixty-eight miles per hour, but there was no wind blowing then, whilst during the race a strong cross wind was experienced. After the third man had got home the others came in very rapidly with gradually diminishing intervals, and it became difficult to distinguish them, owing to the speed and small number plates they carried. Altogether, barring the runaway win, the race was successful, and much appreciated by the crowd.

Reference to the table of bores and strokes will show that the two largest engines finished first and second, their cubical capacity being 984 cubic centimetres in comparison to Collier's 861 cubic centimetres and McMinnies's 476 cubic centimetres. Big engines do not always win, but, other things being equal, it is only natural that they should do nine times out of ten. This being the case, we hope to see handicap racing adopted at Brooklands for motor cycles, about which we shall have more to say next week.

Motor Cyclists' Meet at Richmond.

Some of the 200 Northern motor cyclists who attended the inter club's meet at Richmond, Yorks., on Good Friday.

THE second annual meet of motor cycle clubs in the North-eastern district took place at Richmond on Good Friday, and was a successful gathering. The weather was everything that could be desired—brilliant sunshine, cool air, and dry roads. About two hundred motor cyclists put in an appearance: the Newcastle and District M.C.C., the Leeds M.C.C., the Bradford M.C.C., the Hull and District M.C.C., the Sheffield and Hallamshire M.C.C., the Middlesbrough and District, and the Hartlepool M.C.C., contributing contingents. This year the meet was more formal and businesslike than the initial venture of last year, a new and important departure being the conference in the town hall, at which various matters affecting motor cyclists were discussed, particularly the vexed question of affiliation to the A.C.U. Mr. E. L. Bates, of Newcastle, whose enthusiasm for the sport is well known, was elected chairman of the conference and president of the meet, and it was decided to make the meet an annual affair with Richmond as a rendezvous. Mr. G. W. Liddle, the secretary of the Middlesbrough M.C.C., under whose auspices this and last year's meetings were arranged, was appointed secretary of the meet. Mr. S. W. Carty initiated a discussion on the relation of clubs towards the A.C.U., suggesting that clubs ought to seek affiliation, although they might not approve of the management of the A.C.U. A new body governing motor cycling would be an expensive and an uncertain undertaking, while the only way to improve the A.C.U. was to join that body, support the reform movement and get grievances remedied, and so get the A.C.U. thoroughly representative of and useful to motor cyclists.

Mr. G. E. Vint, president of the Bradford M.C.C., supported, urging motor cyclists to make the best of the A.C.U. He agreed that by combining they could carry out the reforms that were needed. A rival body would be detrimental to the sport, and would deprive members of the affiliated clubs of their right to be licensed to ride in open competitions. The chairman also supported Mr. Carty's point of view. An official photograph was afterwards taken for *The Motor Cycle*, together with a group of leading officials, and a pleasant afternoon was spent by the motor cyclists in and around the fine old Yorkshire town, which is so popular a resort for cycling meets.

THE M.C.C. EASTER TOUR.

The Motor Cycling Club Easter tour, despite the inclemency of the weather, was well attended. The Red Lion, Salisbury, was fixed upon as headquarters, and on Saturday and Sunday excursions were made to places of interest in the surrounding district. On Sunday the members experienced a heavy snowstorm during the return journey from Swanage. Motor cycles and cars were fairly evenly represented. On Sunday Messrs. R. M. Brice, W. H. Wells, and others left Salisbury for town to attend the race meeting at Brooklands on the Monday. The tour was voted a most successful one, despite the bitterly cold easterly winds which prevailed.

We hope to give a more detailed report and one or two illustrations in next week's issue. Up to the time of going to press our photographs had miscarried.

CLUB NEWS.

Cardiff Motor Club.

The opening meet took place on Good Friday at Tintern, Wye Valley. Members and friends numbering well over thirty sat down to lunch at the Anchor Hotel, and after visiting the historic abbey continued the journey up the valley of the Wye as far as Monmouth, where the river was left, and the party made for Raglan, where tea was served at the Crown Hotel, the party then making for home *viâ* Usk and Newport.

Ayr and District Motor Cycle Club.

The opening run was held on the 15th inst. to Largs—a distance of over thirty miles. The party, consisting of seventeen members, headed by the captain, Mr. John Hourston, left the Burns Statue Square at 10.30 a.m. Largs was reached about midday, and after a pleasant interval of four hours the return journey was commenced.

Bradford Motor Cycle Club.

The first competition was a fast and slow hill-climb on Long Hill. The slow climb up the hill proved a trying test, and few were successful in making the ascent at a walking pace with their engines running. Out of fourteen entrants only six competitors finished the dual test, these being in the order of merit as follows: T. Briggs (3½ h.p. Phelon and Moore), G. E. Tennant (5 h.p. Vindec), H. Wheelwright (3 h.p. Humber, P. and M. two-speed), A. Barraclough (3½ h.p. Phelon and Moore), E. Slater (3½ h.p. Triumph), and E. Merrall (6 h.p. Jap). Mr. W. Musgrave, the assistant secretary, acted as starter, and Mr. A. H. Forbes and Mr. B. Read, hon. sec., were the timekeepers.

M.C.U.I. (Ulster Centre).

A committee meeting of this centre was held at the Grand Central Hotel, Belfast, on the 15th inst. Mr. R. Graham Lindsay was elected chairman for 1908, and Mr. J. S. Garrett vice-chairman.

T. Ireland wrote resigning his seat on the committee owing to his removal to Birmingham, and the resignation was accepted with much regret. J. Stewart was co-opted to fill the vacancy.

May 1st was suggested as the date of the conference with the Dublin Centre at Dundalk, and Messrs. R. G. Lindsay, J. S. Garrett, J. Holden, and A. W. Hamilton were appointed delegates.

The following fixtures were arranged: May 9th, hill-climb at Carnmoney; May 23rd, reliability non-stop run to Ballycastle, with hill-climb on the way.

S.E. Auto Cycle Association.

At a meeting at the Green Man Hotel, at Southend, on the Sevenoaks Road, the new S.E.A.A. (late Lewisham A.C.) was formerly inaugurated on the 16th inst.

Mr. W. Simms, of Blackheath, was appointed to the chair, and, following some interesting remarks, explained the *raison d'être* of the meeting, after which he called upon Mr. H. Bickingham Renner to give an address on the aims and objects of the new Association. This was followed by a discussion, the following resolution being carried unanimously, "That the S.E. Auto Cycle Association be hereby formed." It was resolved that the A.C.U. be advised as to the change of title. Mr. Renner was elected hon. sec. and treasurer *pro tem.*, and two delegates to the A.C.U. were appointed.

It was also agreed that the yearly subscription to the association be half a guinea for town members and five shillings for country members, and that there be no entry fees in the case of members joining before the 30th inst.

Newcastle Motor Club.

An extraordinary general meeting was held in Newcastle-on-Tyne on Tuesday, the 14th inst. Mr. J. E. Hodgkin, secretary of the North-Eastern Automobile Association, intimated that in a private interview with Mr. F. Straight, of the A.C.U., he advocated the formation of a Northern Centre of the A.C.U., and mentioned that as the N.E.A.A. embraced the majority of northern motor cyclists it was in a strong position to take the initiative in the movement.

It was decided to affiliate with the North-Eastern Automobile Association, and request that body to appeal to the A.C.U. to form a Northern Centre.

A handsome trophy in the shape of a beautifully-designed silver shield has been presented to the club by Mr. Alan Robson for a hundred miles non-stop run.

Essex Motor Club.

The opening run was voted a pronounced success, ov forty members and friends attending. After luncheon t party adjourned to a shady spot, where a photograph w taken. Members then split up into small parties, and pr ceeded to Bishops Stortford to tea, *viâ* Braintree and Du mow. Members are reminded of the paperchase on Satu day next, when some excellent sport is promised. The har will leave the Castle at 3.30 p.m., and a course of abo twenty miles will be laid, the finish being within a few mil of Epping. Tea will be arranged for at the Cock Hotel. T winner will be rewarded with a free tea. On the followi day the club run is to Southend, and, if the weather is fin a large number are sure to attend.

The club hill-climb will take place on Saturday, May 9t and the formula will be on a new and unique system, which it is hoped to bring each competitor on to the starti line with the same chance of winning. There will be thr classes for single and three for twin-cylinder machines. T weight of each single-cylinder machine and rider must not less than 320 lbs. and each twin 340 lbs.; lightweigh 250 lbs. In the event of the lightweights not reaching t top, the machine which goes furthest to be the winner. pedalling or starters allowed. Entry forms and particul from the trials hon. sec., Ernest J. Bass, Crown Hotel, Ong

Lincolnshire M.C.C.

The snowstorm which swept over the county affected hill-climb at Waddington of the L.M.C.C., for several of riders having long distances to travel shirked the journ Out of the sixty-seven entries there were, however, a gr many competitors, and some excellent times were made.

The hill is exactly half a mile long, and has a fine gradi

Lincolnshire M.C.C. Waddington Hill-climb. A competitor rounding th bend at full speed.

of 1 in 7. A cup is offered by Mr. R. M. Wright for best performance, but this remains to be decided on formula— $\frac{W}{C \times T}$.

D. Lowe (Lincoln), 2½ h.p. Ariel, was fastest in his cl 60m. 0⅘s., and easily won. G. Nicholls, 2¾ h.p. De Di was second; and T. Bowling, 3 h.p. Riley was third. Guesford (Frodingham), 3 h.p. Fafnir, made good time, his weight is not yet ascertained.

In class 2 under 88 × 88 mm. G. Williamson (Stamfo 3½ h.p. Vinco, made best time, doing 47⅘s. J. H. Bro (Lincoln), four-cylinder F.N., did 53⅗s.; and H. Gau 3½ h.p. N.S.U., 53⅘s. On the formula, A. E. Brunni 3½ h.p. Dene-Fafnir, was the winner; J. H. Brookes, fo cylinder F.N., second; and H. Gaunt, 3½ h.p. N.S.U., thi

In the twin class, W. J. Clark (5 h.p. Rex) went up 36⅕s., fastest time of the day, and won; W. I. Binks (5 h Roc) second; and F. Richardson (5 h.p. Vindec) third.

Mr. Eric Longden (Lincoln), 7·9 h.p. Minerva, won passenger class in 64⅕s.

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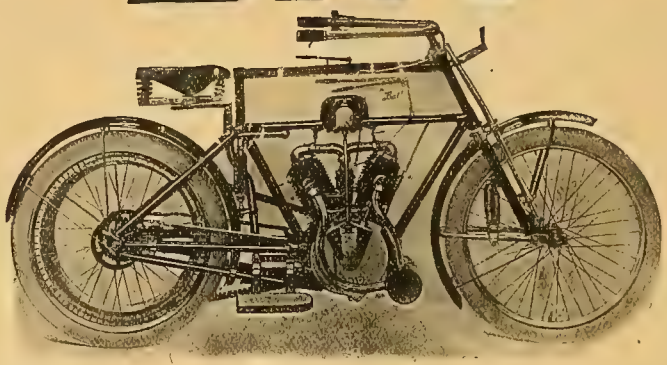

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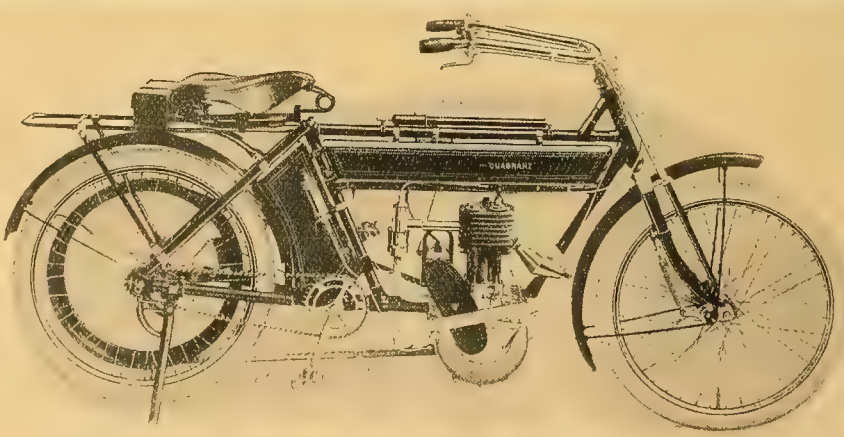

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Club News.—

Southern M.C.

The following gentlemen have accepted office for 1908: President, C. Howlett; vice-presidents, Messrs. W. Howlett, Col. Mark Mayhew, I. H. Mitchell, Staplee Firth, H. L. Doulton, and F. C. Patterson; chairman, A. Vicars; vice-chairman, B. Grottick; committee, Messrs. Pugh, Brodie, Patterson, Connor, and Worger; sports secretary, A. W. Holt; social secretary, A. C. Belcher; reporting secretary, K. Davies; general secretary, W. L. Lorkin; auditors, J. W. Cufley and G. Fisher; riding officer, F. S. Fitch; Motor Union representatives, Messrs. Vicars, Lloyd, and Lorkin.

The Secretary read a very satisfactory report at the meeting, which showed that this club did a lot of good work during 1907, and this year it hopes to again double its membership. A number of runs and competitions have been arranged for 1908.

Brighton and District M.C.C.

The above club held its first competition for 1908 on Saturday, the 11th inst., when a hill-climb was successfully run off on Saddlescombe Hill. The event was divided into three classes, viz.: I., single-cylinder machines; II., multi-cylinders; and III., passenger vehicles. The winner in each class was decided by the A.C.U. formula $\frac{W}{C \times T}$, and the results as follows:

CLASS I.—SINGLE-CYLINDERS.

	Position on formula.	Time, giving fastest man as zero.
W. J. Coleman (2½ h.p. Triumph-Jap)	1st	12s.
C. R. Robinson (1¾ h.p. F.N.)	2nd	43s.
T. Attwater (2½ h.p. Jap)	3rd	20s.
A. Yapp (3¼ h.p. Rex)	4th	14s.
*W. R. Farley (3½ h.p. Triumph)	5th	X
E. L. Waters (3 h.p. Rover)	6th	19s.
W. J. Wormald (3 h.p. Rover)	7th	36s.

CLASS II.—MULTI-CYLINDERS.

W. Brett (3½ h.p. Alcyon)	1st	4s.
T. Rollon (3½ h.p. F.N., four-cylinder)	2nd	40s.
*R. W. Cartwright (5-6 h.p. Rex)	3rd	X
H. B. Gates (4½ h.p. Minerva)	3rd	6s.
H. Saunders (5-7 h.p. Bat-Jap)	5th	19s.
H. Clifton (5 h.p. Roc)	6th	40s.
J. H. Best (7-9 h.p. Buchet)	Failed—misfiring.	

CLASS III.—PASSENGER VEHICLES.

Athol Lambert (5-6 h.p. Phœnix Trimo)	1st	40s.
*R. W. Cartwright (5-6 h.p. Rex and sidecar)	2nd	X

* Denotes fastest man in each class.

Everything was carried out in a most successful manner, and the sport provided was much enjoyed by members and onlookers. Timekeepers, Messrs. Smith and Mertens; starter, C. E. Sambrook. After the event the members made their way to the Chinese Gardens at Hurst for tea.

Stockport and District M.C.C.

On Saturday, the 11th inst., the opening run of this newly formed club was held to Knutsford. About thirteen members took part in the run, which was much enjoyed. On the following day twelve members took part in a run to Chester. Next Saturday (25th inst.) the run is to Great Budsworth, leaving headquarters, Mersey Hotel, at 2.30. April 26th, run to Whitchurch, leaving headquarters at 11 o'clock. All motor cyclists will be made welcome. The hon. sec. is H. Marsden, George's Road, Stockport.

Lincolnshire M.C.C. (Scunthorpe Centre).

A very successful hill-climb took place on Trafford Hill This was the opening event of the new centre. Mr. Fletcher acted as starter and Mr. Jackson was timekeeper. The following are the results:

		Figure of merit
1.	Mr. Lingard (3 h.p. Fafnir)	33.0
2.	Mr. Guessford (3 h.p. Fafnir)	32.7
3.	Mr. Spavin (3½ h.p. Fafnir)	29.3
4.	Mr. Barley (3½ h.p. Fafnir)	27.9
5.	Mr. Cook (3½ h.p. Minerva)	26.9
6.	Mr. Cordock (2¾ h.p. Kerry)	23.0
7.	Mr. Atkinson (6 h.p. Jap)	21.9
8.	Mr. Heseltine (5 h.p. Rex)	19.7
9.	Mr. Singleton (3 h.p. Fafnir)	17.4
10.	Mr. Brooke (5½ h.p. Rex)	not weighed
11.	Mr. Simms (3½ h.p. Brown)	,,

Mr. Lingard is the winner of singles, and Mr. Atkinson winner of twin class.

Bradford M.C.C.

At the last committee meeting the following programme for 1908 was definitely decided upon:

May 3rd.—Speed-judging competition. Meet at Bolton Bridge at 11 a.m. Prize, pair of bronzes, value £2 2s.

May 10th.—Minor hill-climb at Green How Hill. Meet at Pateley Bridge at 12.30 p.m. Prize, club gold medal.

May 24th.—200 miles reliability trial, Bradford to Keswick *viâ* Kendal and back. First prize, N.S.U. cup, value £8 8s., and club gold medal, value £1 1s.; second prize, club gold medal; third prize, bronze medal.

June 21st and 22nd.—Bradford and Edinburgh and back reliability trial. First prize, Triumph cup, value £10 10s., and gold medal; second prize, club standard gold medal; third prize, ditto. All who complete the journey and return within the twenty-four hours, bronze medal.

July 26th.—Hill-climb for Dyson shield, value twenty guineas, and club gold medal; second prize, club standard silver medal.

August 23rd.—100 miles circular non-stop run. Prize, club gold medal.

It is probable that a Bradford to London competition will be arranged later, and also further minor competitions. The officials of the club will be pleased to hear from other clubs or persons who will assist in the checking for the Bradford and Edinburgh run. Letters should be addressed to Mr. Bernard Read, the hon. secretary B.M.C.C., Imperial Hotel, Bradford.

A good turnout on the occasion of the first run of the newly formed Stockport and District Motor Cycle Club.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Outside Flywheels.

[3256.]—With reference to Mr. Atking's letter on external flywheels, he may be interested to know that about ten years ago, I owned a bicycle the one horse-power engine of which was fitted with two external flywheels on opposite sides of the engine, as he suggests.

This machine was fitted with tube ignition and was built by Werner Frères. A. C. E. WHITTARD.

A Suggested Oil Gauge.

[3257.]—I wish to call the attention of your readers to a means whereby the correct amount of oil in the crankcase may be assured when the engine is not running and the machine is level. It is well known that if a bottle be filled with water and placed upside down with the neck in water no water will run out of the bottle. If air be allowed to get in it will run out until the passage of air is stopped. The correct amount of oil for the running of the engine should have a definite level in the crankcase. Let a tube and a stop cock be connected from the oil reservoir to this level (which level can be found by experiment). When the cock is opened the oil will flow till it reaches the level of the end of the tube (which is adjusted to the correct level), when no more oil will flow because no air can get to the reservoir to replace the oil. The cock must be closed after, because when the engine is running, the oil being tossed about, would not cover the end of the tube. This arrangement would be very handy when starting for the day, or at moments when the engine is not running. F. S. AVERY.

A Satisfied Purchaser.

[3258.]—You inserted in January a letter of mine, and your much appreciated reply thereto in reference to the advisability of my exchanging my 1906 Rex motor cycle for the 1908 Rex two-speed gear, ball-bearing engine, twin-cylinder machine fitted with the twin back tyres. I write now to thank you very much for your advice *re* the exchange contained in this letter.

I may say, firstly, that my early Rex twin served me very well, although, of course, there were many improvements and refinements that were desired.

I have now used my new Rex with and without Montgomery sidecar, for about ten weeks and am delighted. I find the engine very powerful and flexible, the change speed gear is all that by results can be desired, and by its use I can now travel from slow walking pace to fully forty miles per hour. It is, to myself, an inestimable boon that now, in the event of a traffic check on a hill, I am relieved of coming to a quick choice of either taking one's chance, or dismounting with the latter's attendant muscular efforts in restarting, especially with sidecar. My mount will start firing evenly at the first turn of the handle, and also will, as you stated, glide off on almost any gradient.

I have never had the slightest symptom as yet of any skid, although I have been over most treacherous stretches. The machine is most comfortable, and the brakes are really efficient.

I am fitting handle-bar control, and this, together with the fitment of an easily removable less open silencer for use with sidecar, is the only improvement. I think the latter is desirable for a really useful passenger taking motor cycle. I have no financial interest in the Rex Co.

ERNEST P. BLOIS.

Transmission for Passenger Machines.

[3259.]—I am using a sidecar with my 5½ h.p. twin-cylinder motor cycle, and after trying all kinds of well-known belts with unsatisfactory results, I have now made a combination of a chain and belt drive, having the advantages of both, and, I believe, none of their disadvantages. I have fitted a counter-shaft in the bottom bracket, carrying a chain wheel and pulley screwed together. I use a chain drive from the engine-shaft to the counter-shaft, and a belt drive from the counter-shaft to the driving wheel. The gear can be reduced to any desired extent from the engine-shaft to the counter-shaft, thereby allowing the use of a fairly large pulley. The reduced speed and large size of the pulley afford a splendid grip for the belt, and should reduce the wear and tear of the same very considerably. I have found the combination answer very well. It may perhaps interest some of your readers.

W. LOWEN.

Courtesy at the Shows.

[3260.]—The remarks of some of your contributors as to the treatment received at the hands of British manufacturers at the shows have been forcibly brought to mind during the last few weeks. For example, I wrote to one of your Lancashire advertisers *re* the boring of a cylinder, but received no reply. I afterwards sent the cylinder to one of the principal London advertisers of this class of work, under their promise to return the cylinder within five days, but three weeks elapsed before I got it back. Again, on the 19th ult., I sent to another London advertiser for such a simple thing as an inner tube 26in. by 2¼in., but I have not even yet received the tube, although it is now eight days since I sent them the order, and of course in both cases cash was sent in prepayment. One would have thought that those whose business it is to cater for motor cyclists would have sought rather to minimise than to add to the worries of the patrons of motor cycling, who experience quite enough trouble without such annoyances as I have indicated above. BRITON.

Does an Air-cooled Engine Overheat?

[3261.]—*Re* Mr. Walford's letter, my remark regarding smoke pouring out of the silencer was to show that oil can and does get to the piston rings. In fact, it gets past them; hence the smoke. Mr. Walford some time back stated that, owing to pressure on top of the piston, no oil could get at the piston rings. But when the machine is run down the hill with the exhaust valve lifted, owing to the pressure not existing the rings are lubricated, and on the second try the machine goes up. It is certainly wrong to have a smoking engine, but engines often do smoke badly on a hill, thus proving that oil can get to the rings.

In America large air-cooled engines are used. Very likely, but why the special bonnet and fan arrangement? The Americans seem to fear an overheated engine, and I do not blame them.

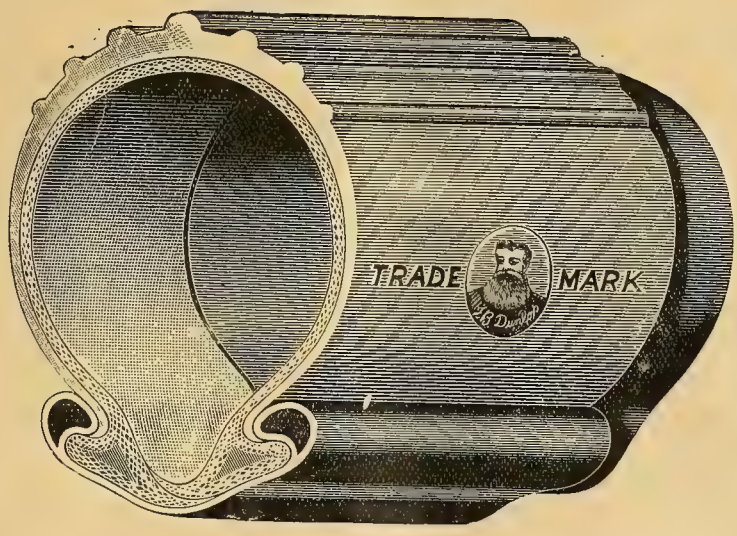
Finally, Mr. Walford is some time finding out what stops my engine on a hill when it is hot, and what makes it go up when it has cooled down. It is not lack of lubrication, as I have tried extra lubrication with very little better results. It is not due to the oil being unable to get at the piston rings, as I can start straight off from where I give out. What then is it, if it is not excessive heat of the engine?

G. FRISCH (INTERESTED).

When specifying Tyres for your motor cycle or tricar, remember the

20 YEARS' EXPERIENCE OF TYRE MANUFACTURE

incorporated in the Dunlop motor cycle tyres of to-day. No other tyre can claim such a record.



Hence, if you want the best, insist on having

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Send for Tyre Booklet, gratis and post free.

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THE CARBURETTER

FITTED TO THE MACHINE

WHICH BROKE THE WORLD'S 200 MILE MOTOR CYCLE RECORD,

ALSO

WORLD'S FOUR, FIVE, & SIX HOURS' RECORD.

COPY OF TELEGRAM RECEIVED FROM THE RIDER.

*"Brown and Barlow, Birmingham. World's **200** mile motor cycle record beaten to-day on Brown and Barlow carburetter. Also world's four, five, and six hours' record. Official.*
—Harry Martin."

The advantages of the BROWN AND BARLOW Carburetter can only be appreciated by having one fixed to your machine. All the leading motor cycle manufacturers are fitting them.

Some of its special features—

Efficiency, Lightness, Strength & Durability

MODELS CAN BE SEEN IN

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The Autocar FOLDING MAP for Motorists

(In Strong Case).

When on tour the automobilist is often faced with the question or which road to take or the best way to reach a certain place. All such difficulties can be overcome by carrying "The Autocar" Folding Map in your kit. It occupies very little space, as when folded it measures only 7½in. × 9½in. All main roads are marked in red, and the distances between all important towns are given.

PRICE 8/10, Carriage Paid.

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The Offices of "The Motor Cycle," 20 Tudor Street, London, E.C.

The Selection of Gear Ratio.

[3262.—As an interested reader of your very able journal, I have noticed the article in a recent issue on the choice of gear ratios. May I, without in any way decrying the excellent work of its author, say that I have used such curve diagrams for the past eighteen months for the purpose of determining the proportions and values of change-speed gears for motor cycles, tricars, and sidecars, and subsequently for motor cars also? An illustrated article upon their application to the latter vehicles was published under my name in the *Mechanical World* of February 14th last, although it was written so far back as last July.

I think I may perhaps claim to have been the first to submit to your notice such curves for motor cycles in January, 1907, and shortly after I lectured upon them before the Engineering Society of University College, Southampton.

A. H. BURNAND, A.M.I.Mech.E.

Gudgeon Pin Accidents.

[3263.]—I notice in a recent issue of *The Motor Cycle* that "Ixion" waxes wroth because someone has had the temerity to doubt the statement *re* gudgeon screw in his article on page 216. I expect the two riders he names have been pulling his leg, and are now quietly laughing at him. The story seems about a match for "What he found in the Carburetter," page 258, and if "Ixion" would only remember that your paper is read by more than mere schoolboys, he would not incorporate such terminological inexactitudes in his "Comments." The whole story reminds me of one told by another of your contributors, Rev. B. H. Davies, who once had his inlet valve stuck sideways in the top of his piston like a penny in a cheese.

I do not think "Ixion's" incredulous correspondent made any inexcusable blunder, because, as the story was printed, it left no alternative but to think that the screw came through the cylinder above the piston at the bottom of the stroke. He said, "The engine continued to run with increased power owing to the freer exhaust," and later, "and creating no small barking." It is the first time that I have seen the air released from crankcase described as exhaust, and the first time I have heard of it making a barking noise.

If I were "Ixion" I should want to see the cylinder in question before he writes out a story like the above again. Also I should think that motor makers have more sense than to make a piston which at the bottom of its stroke was so far from the end of the cylinder joint. It would mean a great waste of iron.

J. HAYTON.

Consumption Trial Formulæ.

[3264.]—It will at once be obvious to everyone reading Mr. Wheater's letter No. 3223 that he has not correctly read the brief details of the paper read before the members of the York County Motor Cycle Club as reported in *The Motor Cycle* of March 11th.

I have heard it said that figures may be made to prove anything, and I believe this to be true to a certain extent, especially if they are manipulated by a person professing a good knowledge of mathematics.

The formula I suggested was, weight of rider in pounds + cubical capacity in centimetres ÷ petrol consumption in ounces = figure of merit. The highest figure of merit the best performance. This will show very different results compared with the examples quoted by your correspondent.

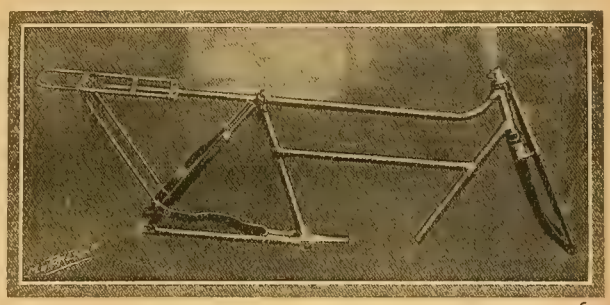
If we keep to Mr. Wheater's examples, retaining his figures for weight of rider and petrol only, and substituting cubical capacity in centimetres in place of nominal horse-power, we obtain 670 for 5 h.p. (= 5 h.p. twin Vindec) and 376 for 2½ h.p. (= 2½ h.p. Wolf), and working out this formula correctly, we obtain the following varying figures of merit, 51, 67, 77, 43, whereas the examples given by your contributor each showed the figure of merit to be 50. The idea of the author was no doubt to prove that a 5 h.p. machine would be allowed twice the amount of petrol compared with the amount allowed a 2½ h.p. machine, and a rider weighing only half the weight of another competitor would be expected to travel twice the distance on the same amount of petrol. This is far from being true, and is the very factor which the suggested formula counteracts.

Mr. J. R. Kelly's views of a consumption trial formula appeared in *The Motor Cycle* of June 12th, 1907, and coincide with the method already adopted by many clubs, viz., petrol allowance for weight of rider and machine, but in addition he suggested penalising a rider for every second late in arriving after minimum time in completing a given distance. It was this penalising clause which came under my criticism, and which, in my opinion, is introducing into the formula an element or factor which might possibly materially affect the result, apart from the petrol consumed.

H. H. CHARGE.

Luggage Carriers.

[3265.]—Regarding the luggage carrier described by Mr. Richardson Billings [letter No. 3232] in *The Motor Cycle* of April 8th, this is similar to our registered carrier, Reg. No.



516,308, which was shown at the Stanley Show fitted to one of our Dot motor cycles Ours is made with telescopic stays and long seat-pillar. This allows any position of saddle. Registered number of frame 516,309.

H. REED AND CO.

The Future of Motor Cycling.

[3266.]—In *The Motor Cycle* of March 11th, page 193, you gave an illustration of my 9 h.p. spring frame Bat machine fitted with the Premier two-speed gear and internal expanding Roc clutch, and, judging from the correspondence I have received about the same, it is just the machine that many of your readers are looking for and only waiting to see if the combination is a success, so if you would kindly insert this letter it would save a lot of trouble and writing.

While there are many that are just coming into the ranks of motor cyclists and require a lightweight machine, there are many like myself that remember the 2 h.p. in the old days and the desire each year for more power, and I am pleased to say at last we have got a motor cycle that will climb any hill in this island of ours, while for speed I do not think there is anything to touch it on the road.

The two-speed gear is a grand invention; to be able to start the engine with the handle and stand over the machine, the saddle being built low down, and just press the low gear pedal and glide away, is very fascinating. Many of us know something of what it is to have to push and run alongside a twin-cylinder machine, weight about 200 lbs., and engine cold and stiff, then, after a mile or so of this, to find accumulator run down, which was fully charged the night before.

But with the magneto all these troubles are done away with, and as the starting handle fits on the live axle the starting is geared up and engine starts first turn.

When the machine is under way all you have to do is to press the high gear pedal, when the whole of the gear runs solid, and to change down again press the low gear pedal, which automatically releases the high and puts the low gear in; no change-speed levers, two pedals to push, that is all; no jar, no shock, no noise; the whole gear works very smoothly, and there is nothing to get out of order.

I was told by an expert that there was no two-speed gear on the market that would stand the pull of the 9 h.p. J.A.P. engine, but this gear is well up to its work, and would stand a larger engine if necessary.

For any who require speed, comfort, or a machine for sidecar work, this is just the machine. What with the magneto, automatic lubricator, spring frame, two-speed gear and free engine, we have got very near the ideal.

The engine is a fine piece of workmanship, and is almost silent.

I need hardly say I have no interest in the makers of the machine or the gear. LUTHER L. FARRINGTON.

Unattached Riders.

[3267.]—Mr. S. Herbert Fry exactly voices the case of myself and a large circle of motoring friends. We have no time for club runs and other fixtures, being mostly in businesses of various sorts. We would all like to join the A.C.U. for mutual help and protection, to forward the pastime, and to give weight to agitations for road improvement and other forward movements, but so far have been unable to join any body at anything like a reasonable expense.

So I and others are glad to see the C.T.C. stirring in the matter, though should much rather the A.C.U. had accepted Mr. Hall's proposal. CHAS. D. FITZGERALD.

A Dissatisfied Owner of a Twin.

[3268.]—As a possessor of a 5 h.p. twin motor cycle, may I be allowed to state a few facts concerning the same?

Having ridden since last May slightly under 4,000 miles, I was compelled through bad knocking to dismantle the whole engine, and to my astonishment found everything in a wretched state of wear, although it had always been well lubricated with an oil recommended by the makers.

The pistons and connecting rods had a considerable amount of play both vertically and horizontally; the timing wheels and exhaust cam were also very much worn, to say nothing of the bearings upon which they run.

May I ask if it is usual for a 5 h.p. engine to wear in this way in such a short space of time? If so, I can fully understand the popularity of the 3½ h.p. single-cylinder machine.

I should be glad to hear if any of your readers have had a similar experience with 5 h.p. twins. DISSATISFIED.

Motor Cycle Taxation.

[3269.]—I have read several interesting letters in your paper *re* motor cycle taxation at different times, but up to the present there is one phase of the subject which so far as I can see has not been touched upon, and as I feel it concerns a large and growing proportion of motor cyclists, I have overcome my usual reluctance to rush into print.

I allude to riders who can only afford to buy second-hand machines, and who by doing most repairs themselves are able to bring running and maintenance expenses down to a very low figure compared with their less penurious comrades in sport.

The £1 a year proposed by the Royal Commission is, I contend, an unfairly placed burden on such a man as I cite above, and is out of all proportion to the proposed tax on a large car.

There are motor bicycles (and reliable ones, too) on the second-hand market to-day at about £15—perhaps a little under-powered when compared with the last word in, say, 3½ h.p. machines, but still good value for the money. Now, I ask, is it fair to ask such a man owning such a motor cycle to pay a tax just amounting to under seven per cent. of his original outlay, when a person owning a large car which may cost anything from £800 upwards only pays the £8 8s. suggested by the Commission, or slightly over one per cent. on the outlay?

I contend that in the face of the above figures there are three courses open to the Chancellor of the Exchequer. He should either—

(*a*) Allow the motor cycle tax to remain at £1, and raise the car tax to somewhere round £50; or

(*b*) He should allow the car tax to remain at £8 8s., and reduce the cycle tax to somewhere round 2s. 6d. or 3s.; or

(*c*) He should strike a happier and fairer medium having regard to original outlay, as well as weight.

Some of your readers may think I have under-estimated the cost of a second-hand motor cycle, but I know three motor cycles in this district that cost their owners £14, £16, and £17 respectively, ready for the road in every way; two are 2¾ h.p. and one a 3½ h.p. magneto, and all three have thousands of miles of wear left in them.

The figures *re* taxation I take from Mr. Jeffreys's letter [No. 3180], page 223 of your paper for March 18th, 1908.

My assumption that a man's ability to pay a tax can be judged by the amount of money he is able to lay out on the article taxed is, I think, a fair one. Theoretically, I consider an *ad valorem* tax the ideal one, but it would so easily lend itself to misuse and fraud that I fear it would hardly be practicable unless some official scale of depreciation could be arrived at, and even this might have bad effects on and tend to in a measure govern the market in an unfair manner. However, this is a wide subject, and I fear I am taking up more than my fair share of the road, so conclude.

H. BANNISTER.

Two-speed Gears and Free Engine Clutches.

[3270.]—If we may trespass on your space, we should like to add a word to the discussion referred to in letter No. 3203, by "F. M."

We support the contention that an air-cooled engine fitted with a suitable gear can be easily handled in traffic without any fear of overheating. The whole point is to have the gear so adjustable to every condition that the engine is always running without effort and firing regularly. Regular firing is most essential to prevent overheating. It will readily be seen that if the gear is not adaptable, the engine has to be switched on and off, with the result that after switching off a larger charge of gas is required to make up for the power lost through the explosion or explosions which the engine has missed, or, in other words, to give a bigger kick to the engine to enable it to drive through an unsuitable gear. This is the true source of overheating and waste.

We find with our Gradua gear that in traffic we can gear down so exactly to the required conditions that we can get the engine to fire regularly with a minimum of gas and without overheating. With this gear, which is infinitely variable, giving any ratio from free engine to the maximum obtainable (three and a half to one, as fitted to a 3½ h.p.), we will undertake to demonstrate for an hour in any traffic, and prove that what we say is correct. We do not imply that one hour is all that can be done, but it should be sufficient to prove our statement.

It is the old argument over again—overheating is due to overloading, and overloading, in nine cases out of ten, is due to unsuitable gearing. ZENITH MOTORS, LTD.

The Balancing and Overheating Questions.

[3271.]—There seems to be a good deal of unnecessary ink wasted in some of the letters to the editor in which the writers refer their fellow motorists to the laws of dear Mr. Boyle and Mr. Charles, and also the concisely expressed laws of dear Mr. Newton.

Possibly the writers who have been instructed to refer to Boyle's, Charles's, or Newton's laws wrote more with the desire of provoking a discussion having some bearing on motor cycling than with the idea of receiving free "correspondence lessons" in physics.

I noticed last week that a designer of one of the leading motor firms is told to look up Newton's third law of motion (which he probably knows).

In answer to Mr. R. A. Parry, might I suggest to him that Newton's third law of motion does not enter into the argument at all (at any rate, not in the way in which he suggests); also, I quite agree with 3188 when he says that the higher the compression the greater the vibration; and I would further suggest that Mr. Parry take a motor cycle along a level piece of road, and (whilst thinking of Newton's third law of motion) push it over the compression, and notice if he can do this without a jerk; and that he notice that the greater the compression the greater the jerk, and *vice versâ*—which is what 3188 refers to—and I think nine out of ten motorists will agree with him without even considering Newton's laws.

Possibly Mr. Parry is thinking only of vertical vibration, but if so, why is he considerably surprised at the designer at one of the leading motor firms [No. 3188]?

I will refer him also to letter 3226, with which, being the happy rider of a Triumph, I quite agree.

Hoping in future to see less elementary physics as taught in some of your correspondents' letters,

RICHARD WATKINS.

EXPERIENCES WANTED.

"Salopia" would like readers' experiences of the Unito motor cycle coupling. He adds: "It is stated that a 15s. license for the motor cycle covers the connected pedal cycle. Is it correct?" [No; it depends on Revenue officer. Some insist on £2 2s., others treat attachment as a trailer, and are satisfied with a further license of 15s.—ED.]

A Good Cycle Tyre

was badly wanted.
We have it at last

thanks to

MICHELIN

Wired-on Covers - 10/- ALL SIZES.

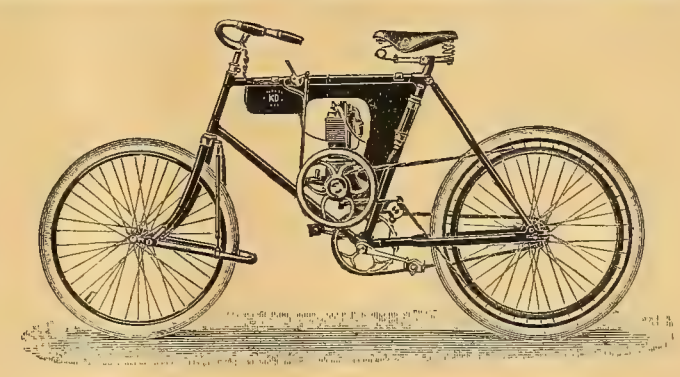
Send for Booklet A.

49-50, Sussex Place, South Kensington, LONDON, S.W.

Telephone: Kensington, 210. Telegrams: "Pneumiclin, LONDON."

"K.D."

FEATHERWEIGHT MOTOR CYCLE FREE



1¾ H.P. Weight **69 lbs.**

With a view to advertising our K.D. Light Weight Motor Cycle, we are offering to every reader of "The Motor Cycle" an opportunity of acquiring one of these popular and efficient 23 guinea machines absolutely gratis.

This cycle was exhibited at the Stanley Show and created great interest owing to its efficient construction and power for weight.

All you have to do is send for one of our mouth sirens, price **2/6**, and upon receipt of your P.O. we will forward one of our latest mouth sirens (guaranteed the best road clearer on the market—"The siren you sent me is simply grand, clears the road A1," writes Mr. W. Nott, of Bristol), which is in itself full value for the money, together with a descriptive leaflet of the K.D., and an entry form for you to fill up stating the reason why you consider you should be awarded a K.D. free. These forms will be forwarded to Mr. B. H. Davies, the popular writer for "The Motor Cycle," with only a number as a means of identification, and he will judge which is the best reason and award the K.D. Motor Cycle to the winner. The bicycle can be seen at our showrooms, where all communications are to be addressed:

64a, POLAND ST., and 13a, BROAD ST., W.

Competition closes May 15th, and the Winning "reason" will be published in "The Motor Cycle," on May 27th.

LEO. RIPAULT & CO.,

Sole agents for the K.D. featherweight.

In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisments in this section should be accompanied with remittance and be addressed to the offices of "The Motor Cycle." Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at *The Motor Cycle* Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o *The Motor Cycle*, Coventry," or if "London" is added to the address, then to the number given, c/o *The Motor Cycle*, 20, Tudor St., E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with *The Motor Cycle*, both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Holds the finest and largest stock of second-hand cycles in the world. 300 to select from. All machines are despatched in running order, with charged and guaranteed accumulators.

HALIFAX.—45s. deposit and six monthly payments of 29s. 6d. secures 2¾ h.p. Excelsior, 2¾ h.p. Humber, 3 h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 3 h.p. Automotor, 3½ h.p. Rex, 2½ h.p. Aurora, 2¾ h.p. Stevens, 3 h.p. M.M.C.; all guaranteed running order

HALIFAX.—5-6 h.p. Alcyon, twin, spring forks, N.S.U., two-speed gear, light and low; £23 10s.

HALIFAX.—4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—3½ h.p. light low Rex, spring forks, 26in. wheels, Longuemare; £12 17s. 6d.; snap this.

HALIFAX.—2 h.p. Humber, spray, trembler, chain drive, splendid climber; cheap, £9 10s.

HALIFAX.—Fine 3½ h.p. Rex, spray, adjustable pulley, very smart and good; £11 10s., tyres excellent.

HALIFAX.—3 h.p. Rover, 26 by 2¼ Palmers, front rim and Bowden rear brakes, Brooks B100; £13 10s.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

are invited to ask for particulars of the WARWICK (Car-style) motor cycle, 4 h.p. It is fitted with PREMIER TWO-SPEED GEAR and ROC (Licensed) INTERNAL EXPANDING CLUTCH, Magneto Ignition. Seat, 31in. from ground, no pedals. STARTS LIKE A CAR. It embodies the results of close study and intimate experience of motor cycles and the needs of motor cyclists since motor cycling began.

Our pamphlet **"The Evolution of the Motor Cycle—culminating in the WARWICK"** contains much interesting and instructive matter. We will send it post free with our booklet on "The choice of a motor cycle, etc., on application."

We are SOLE MANUFACTURERS of the WARWICK, and hold in stock the following makes also:

TRIUMPH.	ROC.
BAT.	F.N.
N.S.U.	MINERVA.
VINDEC.	BROWN.
MOTOSACOCHE.	REX, etc.

You cannot obtain any of the above more cheaply than from this Agency. Moreover we take your second-hand machine in part payment, allowing *at least* as good a price as you would obtain by selling it privately, and you are saved all the trouble and annoyance associated with private sales. Below is a list of **Second-hand machines in stock,** all those over £12 being covered by the Premier **Certificate of fitness:**

N.S.U., 1907, 3½ h.p. Roc clutch and gear	£35 0
ROC, 5 h.p. magneto, Roc clutch	32 0
TRIUMPH, 1907, 3½ h.p. magneto	35 0
N.S.U., 1907, 3½ h.p. magneto, free engine	24 0
N.S.U., 1907, 3½ h.p. magneto, Roc two-speed	30 0
N.S.U., 1907, 3 h.p.	15 0
VINDEC SPECIAL, 1907, 5 h.p. Truffault, and two-speed	35 0
VINDEC SPECIAL, 1906, 5 h.p. Truffault	27 0
NORTON, 1907, 5 h.p. spring forks, magneto	30 0
SINGER, 3¼ h.p. Magneto, new condition	22 0
KERRY, 1906, 3½ h.p.	8 0
ARIEL, 1906, 3½ h.p.	9 10
REX, 1907, 5 h.p. spring forks	17 10
ROC, 1906, 5 h.p. magneto	30 0
EXCELSIOR, 2¾ h.p.	8 0
BRADBURY, 3½ h.p.	8 0
MINERVA, 2 h.p., perfect condition for the road	9 0
QUADRANT, 3 h.p.	9 10
WHITLEY, 3½ h.p.	10 0
REX Tricar, faultless, running splendidly	23 0
DE DION Tricycle, perfect running order tyres very sound	3 10

AGENTS looking for easy-selling lines should write for particulars and discounts of the following:

PREMIER SEARCHLIGHTS.
PREMIER ROAD CLEARERS.
PREMIER TUBULAR STANDS.
PREMIER TUBULAR CARRIERS.
PREMIER ACCUMULATORS,

The . .
PREMIER MOTOR AGENCY,
Aston Road BIRMINGHAM.

MOTOR BICYCLES FOR SALE

HALIFAX Motor Exchange.—Careful consideration of the following will be to your advantage: Why live in this miserable world and potter along on that thumping, perspiring, overheating, and overworked single-cylinder, when you can get a fine twin Rex (a maker's triumph, and the result of many years' experience), with long low frame, long bars, spring forks, and good tyres, in fact, a gentleman amongst paupers in most company, for the modest sum of £22, or we allow you a liberal sum for your old mount in part payment. Note the liberal terms of exchange; £16 for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex.—Halifax.

HALIFAX.—2¾ h.p. Minerva, mechanical valves, 26 wheels, 2¼ tyres, perfect order and condition; £14 10s.

HALIFAX.—3½ h.p. Minerva, spray, girder forks, 26 by 2¼ Clincher A Won, begging at £16 10s.

HALIFAX.—Fine 3½ h.p. Rex, long bars, low saddle, good climber; £11 10s., bargain.

HALIFAX.—Genuine Twin Rex, £22, guaranteed, spring forks, low built, goes like a flash; £16 given for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex in part payment.

HALIFAX.—3½ h.p. Bat, spring frame, long bars, low saddle, 26 by 2¼ Dunlops, Watawata; £20.

HALIFAX.—3 h.p. Bat, two speeds, very smart, good machine, nearly new; bargain, £20.

HALIFAX.—3½ h.p. Phelon and Moore, two speeds, special low frame, spring forks, new non-skid; £30.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 100 miles non-stop; £13 10s.

HALIFAX.—3½ h.p. Rex, spring forks, vertical engine, spray, special finish; £14 10s.

HALIFAX.—Brand new 2¾ h.p. Bat, Peugeot engine, 26 wheels, unridden, and perfect; £25.

HALIFAX.—3½ h.p. 1907 Rex, magneto, Crypto two-speed gear and Montgomery flexible sidecar; complete, £28 15s.; without sidecar, £24.

HALIFAX.—1906 3½ h.p. Rex, specially good condition, 26 by 2¼ Clinchers; £16 5s.

HALIFAX.—5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £27 10s.; bargain.

HALIFAX.—3½ h.p. Simms, vertical engine, magneto ignition, easy starter, reliable; £17 10s.

HALIFAX.—Fine twin Rex, Greenwood's Leeds-London record holder, registered, guaranteed; £22 10s.

HALIFAX.—Special 7 h.p. Peugeot, twin-cylinder, nearly new, a regular flier; £30.

HALIFAX.—3 h.p. Givaudan, late model, spray, almost new, perfect every way; £15.

HALIFAX.—3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15.

HALIFAX.—Kerry, 3½ h.p., vertical engine, spray, very fine condition; £16 10s., perfect order.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 100 miles non-stop; £13 10s.

HALIFAX.—3 h.p. Hobart, vertical, spray carburetter, trembler coil, splendid condition; £12 10s.

HALIFAX Motor Exchange.—Extended payments, exchanges; high-class machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—4½ h.p. twin Minerva, 2½in. tyres, standard; £23.

MAUDE'S.—Rex, 1907 model, blue finish, 5 h.p., splendid condition; £21.

MAUDE'S.—1907 Triumph, practically new, and not been ridden 500 miles, splendid condition; £35.

MAUDE'S.—Rex de Luxe, Roc free engine, in new condition throughout; £27.

MAUDE'S.—Rex, 6 h.p., 2½in. Model de Course, Continentals, cantilever seat; £21.

MAUDE'S.—7-8 h.p. Minerva, 1908 model, very little used; £35 10s.

MAUDE'S.—Rex, 3⅜ h.p., spring forks, spray, trembler, 1906 model, a beauty; £14.

MAUDE'S.—Rex, 1905, low built, spray, 26in. wheels; £12.

MAUDE'S.—1907 3½ h.p. Rex, magneto, in perfect condition; £19 19s.

MAUDE'S.—Rex, 1907 model, just been thoroughly overhauled, and guaranteed like new; £18.

MAUDE'S.—Rex, 1904, Phœnix two-speed gear, suit sidecar; £11.

MAUDE'S.—Rex, 3½ h.p., in very good condition; £9.

MAUDE'S.—Rex frame, Automotor engine, front wheel minus tyre, wants slight additions and alterations; sacrifice £4 15s. lowest; a bargain for anyone who can tinker a machine up.

MAUDE'S.—2¾ h.p. Minerva, new rear tyre, vertical, thoroughly overhauled and enamelled; £12.

MAUDE'S.—2¾ h.p. F.N., 26in. wheels, Palmer tyres; £10.

MAUDE'S.—Clarendon, 3 h.p., vertical engine, beautifully enamelled in green; £10.

MAUDE'S.—2 h.p. Humber, very good condition, plated tanks.

MAUDE'S.—Fafnir, 3 h.p., 26in. wheels, long handle-bars, low built; £12.

MAUDE'S.—Centaur, 3½ h.p., vertical, B100 saddle, low built, free engine, 26in. wheels; £15.

MAUDE'S.—3½ h.p. Excelsior, practically new tyres; £12.

MAUDE'S.—Minerva, 2½ h.p., spray carburetter, very good tyres; £10.

MAUDE'S. — Whitley, 3 h.p., spray, trembler; £9.

MAUDE'S.—Ariel, 3 h.p., 26in. wheels, vertical engine, M.O.V., splendid puller; £14.

MAUDE'S.—Jap, 2¾ h.p. engine, like new, £8; Cunard, 3½ h.p., £10.

MAUDE'S. — 3 h.p. Quadrant, spray, good tyres; £10.

MAUDE'S.—Fafnir, 2½ h.p., 26in. wheels, spray carburetter; £10.

MAUDE'S. — Ariel lightweight, 26in. wheels, 2½ h.p.; £10.

MAUDE'S.—Bayliss, 3½ h.p., £10; splendid puller.

MAUDE'S.—Noble, 3 h.p., spray, 26in. wheels, low built, perfect order; £10.

MAUDE'S.—De Dion, vertical, 2¾ h.p., long handle-bars, spray carburetter; £10.

MAUDE'S.—The machines listed below are ideal lightweights, and can be recommended for solo work.

MAUDE'S.—1½ h.p. Garrard, new front tyre, spray carburetter, coil and accumulator ignition; £4 10s.

MAUDE'S.—2 h.p. Ormonde, belt drive, spray carburetter, very good puller; £6.

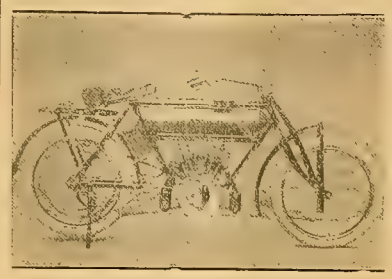
MAUDE'S. — 2½ h.p. Ariel lightweight, 26in. wheels, low built, very good puller; £6.

MAUDE'S.—1¾ h.p. Minerva, spray, good tyres, guaranteed running order; your cycle and £4 4s.

MAUDE'S.—2 h.p. Zedel, newly painted engine, and everything perfect, weight 80 lbs., 26in. wheels, very low built; £12.

Honesty is the Best Policy.

We wish to do business with you once.
We well know it will lead to further custom from your friends. This is our policy.
As proof a gentleman says: "Let me congratulate you on your prompt business methods. I have never experienced such favoured treatment before. Your firm **must** go ahead."



MINERVAS. **QUADRANTS.**
MOTO-REVES. **ROCS.**
ARIELS. **PHŒNIX.**
TRIUMPHS. **F.N.'s.**
BATS. **L.M.C.'s.**
Etc., etc.

TRICARS.

GARRARD Tricar, three-speed, water-cooled	£30	0	0
RILEY, 4½ h.p., two-speed, water-cooled	35	0	0
REX Triette, 6 h.p., twin-cylinder	28	0	0
HUMBER Tricar, chain drive	15	0	0
REXETTE, 8-10 h.p., open frame, two speeds, water-cooled, seat two, wheel steering	40	0	0

CARS.

GOBRON-BRILLIE, 16 h.p., equal wheels, very fast	£100	0	0
Motor Cycle, Tricar, or Small Car part.			
OLDSMOBILE, like new, 5 h.p.	£36	0	0

ACCESSORIES.

Osborne Free Engine	£1	7	6
Salsbury Car Headlights, pair	5	0	0
¾in. Leather Belting, per foot	0	0	6½
Lightweight Engine, 1½ h.p.	2	0	0
Twin Trembler Coil	0	12	6
Charging Plant (large)	4	0	0
Steering Wheel, dished	0	7	6
Plated Seat-pillars	0	1	0
Trailer, with wicker box, new tyres, suit tradesman	2	0	0
Premier Searchlight, brand new	1	2	6
Wright's Footrests	0	7	6
Footrests, fit '06 Rex	0	5	0
Footrests, fit N.S.U.	0	5	0
Frame with wheels	0	15	0
Vim Stands	0	6	0
Pair Long Handle-bars	0	3	6
Trembler coil, perfect, brand new	0	11	0
8ft. 6in. Dermatine 1in. Belt (new)	0	12	0
Three Arc Lamps each	0	10	0
A Quantity of Push Cycles to be sold on Deferred Payments per month	0	5	0

"ALBANY" BELTING.
Latest principle and design.
⅝in. 7d., ¾in. 8d., ⅞in. 9d., 1in. 10d., 1¼in. 1/1 per foot.

CONTINENTAL TYRES.

Cover.	Tube.	Cover.	Tube.
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26 × 2¼in. 23/9	10/-	28 × 2¼in. 30/-	10/6
26 × 2½in. 33/-	11/3	28 × 2½in. 35/3	12/-

3/- allowed on old covers, and 1/6 on old tubes in part payment.

Immediate delivery guaranteed.

Maude's Motor Mart,
POWELL STREET, HALIFAX
(behind the Victoria Hall).

Telephone 433.

GOOD MOTOR CYCLES WANTED FOR CASH.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—2 h.p. Minerva, M.O.V., spray carburetter, good tyres; £6.

MAUDE'S.—To prove that our second-hand motor cycles are intended for road usage, write for our terms for road delivery, and you will be a buyer.

MAUDE'S Motor Mart, Powell Street, Halifax. Behind the Victoria Hall. Sole agents for Minerva motors. Nat. tel., 433.

3 h.p. Triumph, late 1905, perfect order; £16.—Glencross, Forth, Devonport.

2 h.p. Minerva Bike, Chater frame, M.O.V.; £7 10s.—190, Mellison Road, Tooting.

3 h.p. Quadrant, in condition as new; £15. — Wauchope's, 9, Shoe Lane, E.C.

ROCS, Quadrants, etc.—Splendid selection at 28, Frith Street, Shaftesbury Avenue, W.

2¾ h.p. Alldays, nearly new, perfect, vertical engine; £10 10s.—190, Mellison Road, Tooting.

3 h.p. Chase, De Cart engine; £15 very lowest price.—Wauchope's, 9, Shoe Lane, London.

CLYDE, 2¾ h.p., magneto, Longuemare, Clinchers, good condition; £15.—Rodway, Horsefair, Birmingham.

2¾ h.p. Vindec Special, F.N. engine, £14 10s.—Wauchope's, 9, Shoe Lane, E.C.

2¾ h.p. F.N., magneto ignition; £17.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

ZEDEL, 2¾ h.p., vertical, low, 26 wheels, splendid order; £11 11s.—41, Skelbrook Street, Earlsfield.

3¼ h.p. 1905 Lightweight Rex; £10 10s.; powerful on hills.—Wauchope's 9, Shoe Lane, London.

1907 3½ h.p. Quadrant, spring forks, two accumulators.—"Englefield," The Chase, Pinner.

£12.—3 h.p. Bradbury, good going order, fast, powerful.—F. Lincoln, The Grange, Old Windsor.

VALUE £55, price £25.—4 h.p. Two-cylinder Werner, 1907, as new.—Gerson, 4, Hercules Passage, London, E.C.

3¼ h.p. Lynx-Rex, 50-guinea model, long, low, very reliable; £9 10s.—50, Garfield Road, Lavender Hill, Clapham.

ROC, 4 h.p., two-speed, well equipped; £25, no offers.—Rose, 28, Frith Street, Shaftesbury Avenue, W.

F.N., four-cylinder, Palmer cord tyres, long bars, low saddle, like new; £25, no offers.—Rose, 28, Frith Street, Shaftesbury Avenue, W.

3 h.p. Bat, M.M.C. engine, De Dion carburetter, very smart; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

5 h.p. Twin Peugeot, light, and smart, all improvements, as new; only £30.—Varney, 40, Angel Lane, Stratford, E.

2¾ h.p. De Dion-Fleetwing, Chater-Lea frame; cheap, £14.—61, Barkworth Road, South Bermondsey, London, S.E.

1907 Triumph, 3½ h.p., magneto, little used, perfect; sacrifice £33, lowest, bargain.—45, Parade, Leamington.

2¾ h.p. Werner, spring forks, splendid running order, just overhauled; £8 8s.—59, Holly Road, Northampton.

MOTOSACOCHE, accumulator ignition, little used, almost new; a bargain, £23.—Kelly, 63, Cambridge Drive, Glasgow.

MINERVA, 2¾ h.p., low built, Longuemare, Clincher, good running order; photo.—6, Caldecott Street, Rugby.

3 h.p. N.S.U., accumulator ignition, 26 by 2½ Peter-Union tyres, excellent condition; £17 10s.; approval. — Eagles and Co., Acton.

1¾ h.p. F.N. Lightweight, new last October, magneto ignition spring forks, as new; £22 10s.; approval.—Eagles and Co., Acton.

6 h.p. Twin N.S.U., magneto, fan, two-speed, free engine, sidecar, 2½ Continental tyre; cost £76 July, sell £55.—Gates, 14, Manchester Road, Sheffield.

MOTOR BICYCLES FOR SALE.

2 h.p. Inclined Minerva, M.O.V., Brown-Barlow spray, Whittle belt, Prested battery, stand, horn; £6.—Museum, Warrington.

LATEST Model Motosacoche, as new, not ridden 100 miles, several spares; £23 10s. — Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

3 h.p. Fafnir, Palmers, footboards, long bars, Brooks B100, guaranteed faultless; £15 10s.—87, Mildmay Grove, Islington, N.

3½ h.p. Minerva, low frame, 26in. wheels; £17 10s.; first-class machine.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

4 h.p. Roc, free engine, two speeds, magneto, spring forks; £35, grand condition.—Box 9,704, *The Motor Cycle* Offices, Coventry.

4 h.p. Zenith Bicar, open frame, free engine clutch, just overhauled; £22 10s.—Wauchope's, 9, Shoe Lane, E.C.

FAIRY Lightweight, not ridden 300 miles, just as new; £15, push cycle taken in part payment.—S. Missin, Cottingham, Hull.

3½ h.p. Minerva, fitted with two-speed gear, a perfect machine for sidecar work; £19 19s.—Wauchope's, 9, Shoe Lane, London.

2¼ h.p. Triumph, spring seat-pillar, foot brake, in perfect running order; £12 10s.—Trapps, Aycliffe Cottage, Bishophill, York.

2 h.p. Lightweight, Buchet engine, very powerful, low frame, vertical engine; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

MODELE de Luxe Rex, twin tyres, magneto, Roc clutch, in excellent order; £35, or offer.—W. Blezard, 21, Grove Lane, Padiham, Lancs.

3½ h.p. 1907 Triumph, in condition like new; price, lowest £34 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

2 h.p. F.N., spray carburetter, Chater-Lea frame, new Dunlop tyres, good going order; £6 10s.—W. Hayes, Pontywain, Cross Keys, Mon.

3 h.p. Humber Motor Cycle, very powerful, chain drive, two batteries, horn, tools, in real good order; sell £13.—Cordingley, Haslingden.

4 h.p. M.M.C. Pattern, spring forks, powerful engine, low frame, smart; £12 10s.—Wauchope's, 9, Shoe Lane, E.C.

1908 Triumph, brand new, unridden; satisfactory reason for selling; cost £48, will take £44.—No. 9,707, *The Motor Cycle* Offices, Coventry.

4½ h.p. Twin-cylinder Minerva, 1907 model, in condition absolutely as new; price £26, lowest.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

HUDDERSFIELD Agents for Triumph, N.S.U., Brown, Vindec, Roc, Phelon-Moore, etc., machines in stock; exchanges.—Moldgreen Engineering Works.

2½ h.p. Kerry, good condition and going order, tyres almost new; £10 lowest; would ride 25 miles.—W. Darlington, Forest Farm, Hatfield, B.O., Harlow.

3 h.p. Bradbury, good running order, low seat-pillar, good tyres, accessories; photo; approval; deposit; £10.—H. Youngman, Crossley Street, Halifax.

3½ h.p. De Dion, Longuemare, non-skid back, new front tyres, footboards, guaranteed good going order; £17, or best offer.—Baker, 79, Penge Road, South Norwood.

2¾ h.p. Zedel Motor Bike, two accumulators, B100 saddle, new Dunlops, perfect going order; £10; take push bike in part.—Carter, 3, Buckingham Palace Mansions, S.W.

3½ h.p. Twin N.S.U. Motor Cycles, 1908, every latest improvement, absolutely new; price £40, motor bike or tricar taken in part payment.—Cordingley, The Garage, Haslingden.

3½ h.p. N.S.U., magneto, two-speed and free engine, spring forks and seat-pillar, powerful machine, excellent condition; 30 guineas.—Ingleside, Golden Manor, Hanwell, W. After 7.

ALWAYS FIRST

Prompt delivery of all REX and N.S.U. 1908 models. Any machine taken in exchange at a liberal allowance. Cut our quotation before dealing, or you'll regret it. Our requirements of second-hand machines enable us to quote prices

UNEQUALLED

Genuine, powerful, charming TWIN REX, guaranteed in running order, spring forks, low built, goes like a flash, £22. £16 allowed for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex in part payment. Cash, exchange, or easy payments.

NEW MACHINES.

1908 3½ h.p. TRIUMPH, magneto	£48	0
1908 2½ h.p. REX Featherweight, magneto	26	5
1908 3½ h.p. REX Tourist, magneto	36	15
1908 3½ h.p. REX DE LUXE, magneto	47	5
1908 5 h.p. REX Tourist, magneto	42	0
1908 5 h.p. REX DE LUXE, magneto	52	10
1908 3½ h.p. N.S.U., magneto	42	0
1908 5½ h.p. N.S.U., magneto	52	0
1908 2¾ h.p. PEUGEOT, special frame	25	0
1907 5 h.p. TWIN REX, offers wanted.		
1907 TWIN MAGNETO REX, offers wanted.		

CASH, CREDIT, OR EXCHANGE.

5½ h.p. TWIN REX, black finish	£23	0
5½ h.p. REX DE LUXE, mag., Roc clutch	27	10
3½ h.p. PHELON & MOORE, spring forks,	30	0
7-9 h.p. PEUGEOT, practically new	30	0
6 h.p. 1907 Twin REX, nearly new	23	0
6 h.p. 1906 Twin REX, nearly new	22	0
5 h.p. Twin ALCYON, N.S.U., two speeds	23	10
4 h.p. Twin WERNER, fine machine	19	19
3½ h.p. N.S.U., magneto	22	10
6 h.p. Twin REX, non-skids both wheels	22	10
4 h.p. ANTOINE, 26×2¼in. Clinchers	16	10
3 h.p. BAT, like new, two speeds	20	0
3½ h.p. SIMMS, magneto, 2¼in. Palmers	17	10
3 h.p. QUADRANT, spring forks, spray	13	0
3½ h.p. 1906 REX, spring forks, tyres good	15	10
3½ h.p. KERRY, vertical, spring forks	16	10
3½ h.p. MINERVA, spring forks, M.O.V.	17	10
2¾ h.p. MINERVA, spring forks, M.O.V.	14	10
3½ h.p. CLARENDON, spray, fine tyres	13	10
4½ h.p. EXCELSIOR, spray	13	0
3½ h.p. CLYDE, magneto	16	0
5½ h.p. Twin REX, cantilever, 2¼ P Unions	22	0
3½ h.p. BAT, spring frame, 84 x 84	20	0
3½ h.p. REX, trembler, aluminium finish	11	10
2¾ h.p. DE DION, new tyre, and belt spray	12	10
3 h.p. HUMBER, magnificent climber	10	10
3½ h.p REX 1906, 2¼in. tyres, extra good	16	5
3 h.p. AUTOMOTOR, 26 wheels, spray, low	10	10
5½ h.p. Twin REX, Leeds-London machine	22	10
3 h.p. CUNARD, spray, Palmers	11	10
3½ REX, long bars, low saddle, 22in. frame	11	10
3 h.p. ROVER, 26×2¼in., Palmers, spray	13	10
3 h.p. LLOYD'S, fine, 2¼in. Palmers, spray	13	10
2¾ h.p. AURORA, vertical engine, spray	11	0
3½ h.p. HOBART, excellent condition, spray	12	10
2 h.p. MINERVA, spray, good machine	8	10
3½ h.p. REX, spray, fine climber, 22in. frame	11	10
3½ h.p. MINERVA, 26×2¼in. Clinchers	16	10
3 h.p. GIVAUDAN, nearly new, vertical	16	0
3½ h.p. REX, 26×2in., spray, black finish	13	15
2¾ h.p. STEVENS, spray, 26×2 Clinchers	11	10
2¼ h.p. BUCHET, vertical, good condition	11	10
2¼ h.p. SINGER, magneto, chain drive	7	10
2¾ EXCELSIOR, spray, trembler	9	15
4 h.p. ANTOINE, spring forks	16	0
3 h.p. AUTOMOTOR, low mount	10	0

TRICARS, ETC.

6 h.p. Twin ADVANCE, wheel steering	£35	0
5½ h.p. REX TRIETTE, twin cylinder	29	10
4½ h.p. Twin-cylinder MINERVA	32	10
6 h.p. ANTOINE, Chater-Lea, three speeds	39	10
5½ h.p. QUADRANT, two speeds	35	0
3½ h.p. REX, Osborne, four speeds	24	0
5½ h.p. REXETTE, water-cooled, two speeds	35	
REX FORECARRIAGE, fine condition	5	0
HUMBER FORECARRIAGE good condition	3	15
STANDARD Regd. sidecar	4	10

MISCELLANEOUS.

	£	s.	d
9 h.p. FAFNIR engine, W.C. pump, etc.	12	10	0
5 " " W.C. " "	7	10	0
Osborne 4-speed, fit Rex	2	15	0
Light Car Chassis	10	0	0
Tricar Chassis, new	8	0	0
Gripwell Foot Brake	0	8	6
Brooks B100 Saddle	0	12	6
2¾ New Minerva Cylinder	1	12	6
2¾ New Piston and Rings	0	10	6
28 x 2 New Inner Tubes	0	5	9
700 x 65 New Inner Tubes	0	7	9
Humber size New Accumulator	0	7	9

All machines despatched in running order with reliable charged accumulator.
High-class machines wanted for spot cash.

THE HALIFAX MOTOR EXCHANGE,
16, WESTGATE, HALIFAX.
Telephone 766. Telegrams, "Perfection."

MOTOR BICYCLES FOR SALE.

5½ h.p. Rex de Luxe, twin back wheel, magneto ignition, free engine clutch, in splendid condition; price £25.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

3½ h.p. 1907 Minerva, in splendid order, being as new; price £19 19s., first cash; spring forks and butted tube, and adjustable pulley.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

TRIUMPH, 3 h.p., magneto, little used, first-class condition, extra strong new Palmer corded back tyre, front recently retreaded, acetylene lamp, tools, spares; £28.—Herbert, 18, Friar Lane, Leicester.

3½ h.p. Bat, spring frame and forks, stand, lamp, horn, carrier, spare valves, tyres perfect, most comfortable and reliable, in perfect order; £18 10s.—Lea, "Gresford," Sumner Road, Harrow.

HASLINGDEN.—6 h.p. Twin N.S.U. motor cycles, 1908, every latest improvement, absolutely new; price £54, motor bike or tricar taken in part payment.—Cordingley, The Garage, Haslingden. Tel. 2Y.

3½ h.p. N.S.U., magneto, Palmers, 26 by 2¼, adjustable pulley, Brooks 100, low frame, enamelled green, in good condition, with all spares; £21.—61, Barkworth Road, South Bermondsey, London, S.E.

MINERVA, 3½ h.p., splendid condition, long handle-bars, spare belt, two accumulators, spring forks, adjustable pulley, spares, low, powerful; £20, or nearest offer.—Usmar, King Street, Maidstone

2¾ h.p. Zedel, two accumulators, Longuemare, B100 saddle, spring seat-pillar, Watawata, Dunlops, recently new, most comfortable and reliable machine; £10.—Carter, 3, Buckingham Palace Mansions, S.W.

6 h.p. Lurquin and Coudert, new machine, 1908 model, shown at the Stanley Show, R.O.M. contact breaker, English-built frame, very low machine; £38 absolute lowest.—Wauchope's, 9, Shoe Lane, London.

3½ h.p. Riley, spring forks, Palmer tyres, Whittles belt, powerful, climb anything, £20, bargain; three two-volt accumulators, 200 amp., 25s.; non-skid cover, 700 by 85, £1.—Dedman, 26, Sheet Street, Windsor.

3½ h.p. Quadrant, 1906-7, perfect condition, spring forks and pillar, footrests, stand and carrier, accessories, splendid tyres, Palmer cord on back wheel, hill-climb winner; £25.—E. H. Crailsham, Pangbourne, Berks.

BROWN, 3½ h.p., spring forks, new tyres, Advance pulley, R.O.M. ignition, trembler, new Brown and Barlow, spare cover, Riches tube, lamp, tools, etc., excellent running order; £24.—47, Moreton Avenue, Stretford, Manchester.

HOW Will This Suit?—Werner, 2¾ h.p., handle-bar control, L.A.C. spring forks, 20 a.h. Peto-Radford armoured accumulator, Watawata, Bates and Palmer tubes, Dunlop covers, 26 by 2, 4½ to 1, lamp, horn, stand; bargain, £20.—Koetter, 38, Molineux Street, Derby.

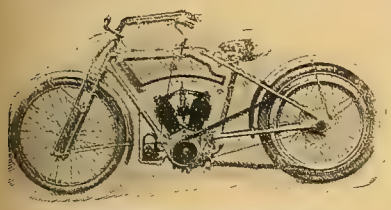
£22.—4 h.p. Antoine, Chater-Lea frame, two speeds, free engine, starting handle, with Montgomery sidecar, two accumulators, Fuller Syntonic, new tyres, lamps, etc., excellent condition.—Motorist, 3, Mount Park Crescent, Ealing, W.

MINERVA, 1908 model, new, just as it left the works, 3½ h.p., fitted magneto, spring forks Mabon free engine clutch, machine registered; agent's price £42 15s., our price £37; also 3½ h.p. Minerva, new late last year, not ridden 750 miles, fitted with magneto, in splendid condition, £25.—Dene Cycle Co., St. Thomas Street, Newcastle-on-Tyne.

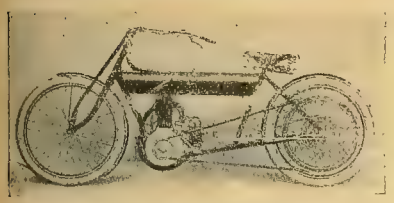
PHELON and Moore, 3½ h.p., two speeds, starting handle, spring forks, magneto ignition, carrier, stand, Acetyphote lamp, horn, etc., etc., guaranteed absolutely perfect, and only ridden about 1,000 miles; cost £55, complete, will accept £33; rare bargain; an ideal machine for sidecar work; reason for disposal bought car.—On sale at Mr. Wauchope's, (who will give applicants every information), 9, Shoe Lane, E.C.

EASTER EXPERIENCES

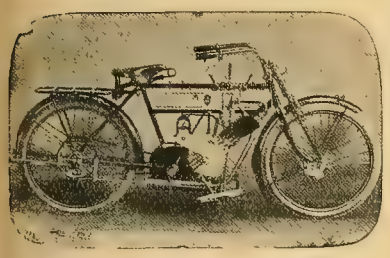
Were you quite satisfied with your machine, or do you require more power and comfort, or was the machine too cumbersome and the want of a lightweight felt. We can supply lightweights and high powered machines for solo or sidecar work, and relieve you of the trouble of disposing of your old machine by allowing you full value in exchange for a new one. The balance can be paid on our easy system on exceptionally low terms



REX models supplied fitted with Magneto Ignition from 25 guineas.



ROYAL ROC, Two Speed and Magneto, 48 guineas.



PHELON & MOORE, Two Speed, Magneto and Spring Forks, 50 guineas.

THE MOTO REVE lightweight, Two Cylinder Magneto, 37 guineas.

All the above can be supplied on our unique—Cash, Credit or Exchange system

CALL, 'PHONE, OR WRITE.

Our accessory list is now ready and will interest you. Our prices are **right.**

The Service Co., Ltd.,

292-3, High Holborn,

London, W.C.

Telegrams: "Admittedly, London."
Telephone: 260 Central.

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PHŒNIX Quadcar, 7 h.p., twin-cylinder, new car tyres, splendid order, new Fuller's coil, been little used; a bargain, 42 guineas.—Gaskell, Clyst House, Milford Haven.

TRAILERS.

MILLS-FULFORD Motor Trailer, 2in. Clinchers; £5.—A., Half Moon, Balcombe, Sussex.

TRAILER for sale, cheap, or exchange lady's cycle, opera glasses; excellent condition.—Dalkeith, Avenue, Surbiton.

CARS FOR SALE.

7-10 h.p. Panhard Delivery Van, two-cylinder, perfect; £29.—190, Mellison Road, Tooting.

14-16 h.p. National, two-seater, three-cylinder, pressed steel frame, Cape hood, cardan drive; £65.—190, Mellison Road, Tooting.

16-20 h.p. Decauville Side Entrance Car, nearly new; £145.—190, Mellison Road, Tooting.

8 h.p. Pope Tribune, two-seater, 1907 model; £55.—190, Mellison Road, Tooting.

40-50 h.p. Mors, two-seater, very fast car; £85.—190, Mellison Road, Tooting.

6 h.p. De Dion Regal, two bucket seats; £50.—190, Mellison Road, Tooting.

4½ h.p. De Dion Car, perfect order; any trial or expert examination; very low price.—Simpkins, Easthorpe, Southwell, Notts.

8 h.p. Tonneau, two new tyres on front, non-skid on back, tools; £50; cycle or tricar part exchange. — 46, Leyland Road, Lee, S.E.

MOTOR Car, four-seater, engine, gear, tyres, in good condition; exchange for new B.S.A. cycles.—Midgley, Vulcan Shed, Nelson.

SMART Oldsmobile, two speeds, reverse, excellent order throughout, complete with lamps, etc.; £31.—M., 46, Llanthony Road, Newport, Mon.

BROOKE Car, three-cylinder engine, just overhauled by makers, capacious tonneau body, with wind screen and canopy, had very little wear, and will bear expert inspection; £55.—Below.

PRUNEL Car, 8-10 h.p., Aster two-cylinder engine, only twelve months old, cardan drive, non-slipping Dunlop tyres, in good condition, a smart turn-out, lately re-painted and lined; £85 for quick sale.—W. Skuse, 1, Ashmore Road, Paddington, W.

50 Miles' Trial Run here to conclude purchase.—8 h.p. Darracq, three speeds, reverse, perfect condition, upholstery and paintwork like new; accept motor bike part payment; £45, offers.—61, Byron Street, Derby.

6½ h.p. Baby Peugeot, an exceptional example, 85 mm. grooved Dunlops all round, three speeds and reverse, lamps, tools, and numbers; £55, near offer; exchange arranged.—Robbins, Engineer, 334, Clapham Road, S.W.

MORS, 15 h.p., four-cylinder, tonneau, for sale, every part recently dismantled, all parts renewed where necessary, and reassembled; cost £70; see Exchange.—Motor, 33, Acre Lane, Brixton.

6 h.p. Singer, three speeds, reverse, heavy Dunlops, Castle coils, Bowden control, lamps, spares, smart appearance, splendid condition; £70, cost £140; any examination.—101, Earlham Grove, Forest Gate.

9-11 h.p. New Orleans, two cylinders, three speeds and reverse, detachable tonneau, three spare covers and tubes; £75, or exchange good make motor cycle and cash.—27, Shrub End Road, Colchester.

6½ h.p. Regal Car, real De Dion car, three speeds and reverse, artillery wheels, Dunlops, fitted with three lamps, horn, tools, etc., in really tip-top order and condition, guaranteed faultless, registered; sell £65, will take motor cycle or tricar in part payment.—Cordingley, Garage, Haslingden. Tel., 2Y.

You can

start easily, climb any hill, crawl in traffic, and do 101 things you can't do now if you fit your bicycle with the

Phœnix Two-speed Gear.

£7 10s. to £8 15s., Belt or Chain.
Up to 5 h.p.

PHŒNIX MOTORS, LTD.,
Blundell Street, London, N.

STANLEY DERMATINE MOTOR BELT.

The Belt that carried everything before it in 1907 Season.

Lewisham Motor Club Open Hill Climb, Saturday, 4th April, 1908,

Dermatine Belt gains Gold and Silver Medals.

No other belt holds such a record.
The Original Rubber and Canvas Belt.

BEWARE OF IMITATIONS.

The standard belt that is adopted by all leading manufacturers.

HUNDREDS OF TESTIMONIALS.

NOTE THE PRICES.

⅜in.	½in.	⅝in.	1in.
1/2	1/4	1/8	1/11 per ft.

POST FREE.

THE STANLEY DETACHABLE MOTOR BELT FASTENER.

With unbreakable Terry's hook.
Guaranteed.
(Made under Simplex Patent.)
In sizes, ⅜in., ½in., ⅝in., 1in., 1/- each.
Wholesale and Retail.

THE STANLEY DERMATINE MOTOR BELT CO.,
32, LONDON ROAD, BROMLEY, KENT.
Stanley Webb, Manager.

The "MABON" FREE ENGINE PULLEY AND CLUTCH.

No alterations required to fit. Operated from handlebar.

PRICE FROM 55/-.

SEND FOR LEAFLET.

Mabon Motor Works,
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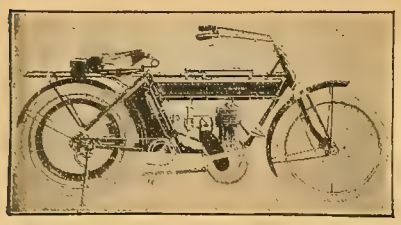
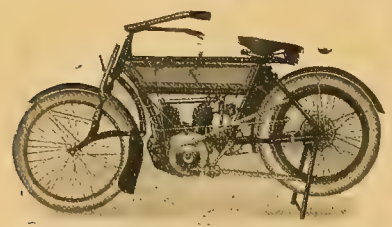
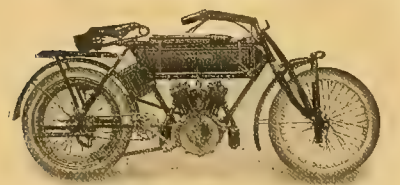
NORTH FINCHLEY, N.
Agents: The Service Co., 292, High Holborn, W.C



1908 QUADRANTS, A.V. £45. M.O.V. £47 10s. You can get them at Wauchope's. Exchanges arranged.

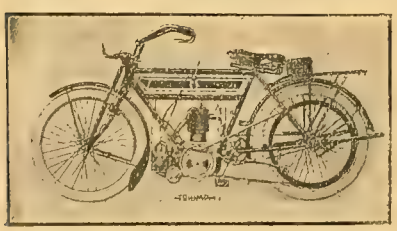


1908 VINDECS, Model F, 5 h.p. £53. Model F, with two-speed gear, £63. Model G, light tourist, 5 h.p. £52. Model H, 3½ h.p. £48 10s. You can get them at Wauchope's. Liberal allowance for second-hand machines.

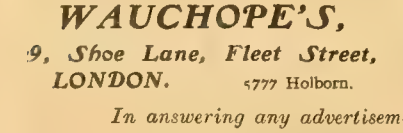


2¼ h.p. MINERVA, £29. 3½ h.p. Minerva, £32. 4¼ h.p. Twin, £39. 7-8 h.p. Twin, £45. You can get them at Wauchope's. Exchanges.

1908 MOTOSACOCHE. You can get them at Wauchope's. Exchanges arranged.



1908 ARIELS. You can get them at Wauchope's. Second-hand motor cycles taken in part payment.



1907 and 1908 TRIUMPH Motor Cycles, £41 and £48 each.

WAUCHOPE'S,

9, Shoe Lane, Fleet Street, LONDON. 5777 Holborn.

CARS FOR SALE.

CHASSIS 9 h.p. De Dion pattern, Rex, three speeds, reverse, tyres, mudguards, tanks, etc.; £27 quick sale.—Whittle, Latchford, Warrington.

8 h.p. M.M.C. Car, two-seater, three speeds, reverse, good running order; take motor cycle or tricar part payment.—Wale, 245, Edward Street, Nuneaton.

HOTELS AND APARTMENTS.

WHEN Visiting London stay at Waverley Temperance Hotel, 17, Euston Square. Bed, breakfast, attendance from 3s.

TOURING.

WANTED, companion (about 20), for inexpensive summer tour (fortnight); date and route mutually arranged.—Steeves, 39, Birch Grove, Ealing Common, W.

LOST AND FOUND.

FOUND on Hog's Back, front lens of acetylene headlight.—Apply, H. F. Knight, Barfield, Farnham.

FOUND, near Stockton-on-Tees, a motor cycle pulley and belt.—Apply, Barker, veterinary surgeon, Stockton.

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BRIGHTON.—Black Lion Garage, back of Sea View Hotel, Black Lion Street, fifth turning from Aquarium on right, along front; specially for motor cyclists; repairs on Sunday.

BASHAM and Co., Engineers, Middle Street, Brighton, opposite Hippodrome, just off sea front, have accommodation for over 100 motor cycles; special terms to clubs; petrol, oils, accessories.

INSURANCE.

INSURANCE.—Please write for particulars of 30s. inclusive motor cycle policy.—Bass, Ongar.

FIRE.—Insure your motor cycle with Hugh J. Boswell, Insurance Broker, Norwich; premium only 2s. 6d. for £25, or 3s. 6d. for £35. Write for particulars.

HUGH J. BOSWELL, Insurance Broker, Norwich, issues al classes of policies for motor cycles at lowest possible rates; third party, burglary, accidents to cycle and owner, etc. Write for particulars.

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MARKHAM and Prance.—R. G. L. Markham, M.I.Mech.E., M.I.A.E.; H. Waymouth Prance, A.I.E.E., A.M.I.A.E.; expert examinations, tests, selections; Colonial commissions executed. — 143, Strand. 3439 Gerrard. Telegrams, Motoneers, London.

TYRES.

FARRAR.—New inner tubes, fully guaranteed, not porous rubbish; 26 by 2, 7s.; 26 by 2¼, 7s. 6d.; 28 by 2, 7s. 6d.

FARRAR.—Tyres, fully guaranteed; 26 by 2, 16s.; 26 by 2¼, 17s. 6d.; 28 by 2, 16s. 6d.; 24in. same price.

FARRAR.—Tremendous stock Continental tyres; your old tyre accepted in exchange; list free.—Farrar, Square Road, Halifax.

FOR Sale, Peter-Union covers, £1; new studded, 32s. 6d.—Woodman's, Peterborough.

10S. Allowed for your old cover, any condition, in exchange for new Goodrich, or Shamrock-Excelsior, all-rubber non-skids.—Below.

5S. Allowed for your old cover, any condition, in exchange for new one of any of the best makes. — Continental Motor Co., 32, Rosebery Avenue, E.C. Tel., Holborn, 1513.

26IN. by 2¼in. Moseley Cover, practically new, perfect.—Hall, 2, Sudell Cross, Blackburn.

PAIR Dunlop Motor Cycle Covers, beaded, 26 by 2¼, excellent condition, 9s. 6d. each; also tubes, 4s. 6d. each; owner abroad.—Glencairn, Stables, Clifton Road, Wimbledon.

THE LEWISHAM HILL CLIMB.

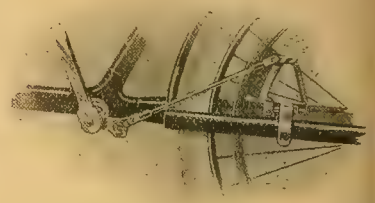
THE INVINCIBLE 'MATCHLESS' AGAIN FIRST!

Vide "THE MOTOR CYCLE" April 8th, 1908.

"Le Grand, whose little 2¼ h.p. Matchless made a wonderful performance Its bore is only 70 mm., and the average bore in Class I. was 80 mm."

Free trials by appointment.

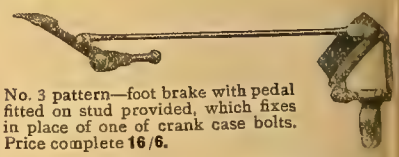
These are the machines that cannot be beaten 3½-4 h.p. single cylinder; 5-6 h.p., 7 & 9 h.p. twins



"CHASE" DRIVING RIM BRAKE.

The first, and still the best driving rim brake. The only really satisfactory motor brake on the market. Made to suit any machine Absolutely reliable. No. 1 pattern—back pedalling brake. Machine can be wheeled backwards. Extremely powerful. Price **16/6.**

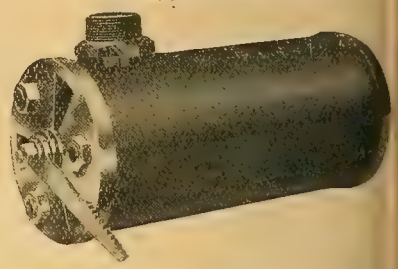
No. 2 pattern—footrest brake complete. Price **£1 6s.** Footrests only. Price **12/-** With either 1⅛in. or 1¼in. clip.



No. 3 pattern—foot brake with pedal fitted on stud provided, which fixes in place of one of crank case bolts. Price complete **16/6.**

"MATCHLESS" SILENCER.

"COLLIER'S machine created great interest owing to the extraordinary silende of the exhaust —*Vide* 'THE MOTOR CYCLE."



A silencer which really does silence the exhaust with absolutely no back pressure—certified by A.C.C. Silence Trials—at moderate price. Up to 3½ h.p **10/-**; from 3½ to 5 h.p. **12/-**. Cut out **5/-** extra. Two connections for twins with separate exhaust pipes, **4/-** extra. Connected in side or end, as ordered.

Catalogues of "Matchless" Motor Cycles and Accessories on application to

H. COLLIER & SONS, LTD.,
Motor Experts and General Engineers.

Offices and Showrooms:
18, HERBERT ROAD, PLUMSTEAD.
(Nearest Station: Woolwich Arsenal.

Telephone: 232 Woolwich.

The "CELERIO."

A PERFECT BELT HOOK.

Only two pieces

Wide bearing on hook.

Spring steel.

Oil tempered.

Design reg'd.

Patent applied for.

Detaches instantly.

Price 1/- each

for ⅞in. or 1in. belts.

State depth of belt.

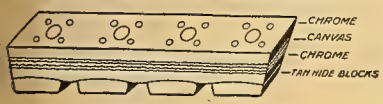
South British Trading Co., Ltd.,

13-15, WILSON STREET, LONDON, E.C.

A SPORTING OFFER

As an inducement to test the new canvas and leather combination, I will send a SAMPLE BELT on the following terms: One half the amount with order, and the balance in three months from date of invoice, providing belt be perfectly satisfactory.

The CENTIPEDE BELT.



Full price of belt per foot—

1/6, ¾ 1/9, ⅞ 2/-, 1 2/3, 1⅛ 2/6.

W. POLLIN, Belt Maker, **Spalding.**

"PEUGEOT"

ENGINES & MOTOR BICYCLES.

2¾ and 3½ h.p. single cylinder.

3½, 5, and 7 h.p. twin cylinder.

Also

Genuine Spare Parts.

I carry a large stock and give prompt delivery.

J. TAYLOR, 318, Percy Road, BIRMINGHAM.

SOLE WHOLESALE AGENT.

ORDER NOW, POST FREE.

Exhaust Valves, "*Non-Corrosive*" *special nickel alloy*, 2/6. Piston Rings (*three*) 2/3. Reboring and New Piston, 14/-. New Cylinder, 27/-. Variable Pulley, 8/6. Gears Cut. Rebushing. New Parts. Patent Fans. Spring Forks, *front or rear*. Rests, Silencers, Gears, Magnetos, Plugs, E.I.C. 4/1. E.K. 2/1 Our list will aid you if in trouble.

THE MARCH MANUFACTURING CO., 68-72, CLIFFE ROAD, SHEFFIELD.

WANTED.

4 to 6 h.p. Twin, water-cooled; cheap; perfect.—Meers, Limes, Ramsgate.

TRICAR wanted, three-seated, Riley preferred, modern. — Sykes, School Terrace, Slaithwaite, Huddersfield.

WANTED, to hire, 8 days, 1¾ h.p. light F.N.; every care.—"Kent Lodge," Hornchurch, Essex.

WANTED, Osborne four-speed pulley, for 3½ h.p. Ariel.—Heath, Dudley Road, West Bromwich.

2¾ h.p. or 3 h.p. Humber Engine, Coventry, new or second-hand.—Apply, S., Forest Side, Buckhurst Hill.

WANTED, Light Powerful Twin-cylinder Tricar, chain drive; cheap cash.—R. Else, Leawood, near Matlock.

WANTED, 3½ h.p. Magneto Triumph, late 1907, best condition; cheap for cash.—No. 9,705, *The Motor Cycle* Offices, Coventry.

WANTED, 3½ h.p. Cycle, in thorough order; expert examination; not Rex; with spares; cheap.—Read, Beaminster, Dorset.

MOTOR Cycle Lamp, generator, foot pump, back Bowden brake, accumulator, spanner.—Greenhill, 12, Cross Street, Woolwich.

ENGINE Wanted, urgent, for 2¾ h.p. Brown motor cycle, must be good condition; expert examination.—Harris, Motor Works, Buntingford, Herts.

WANTED, Motor Cycle, or engine and fittings, good exchange, prize bred terriers or winning field spaniel.—Advertiser, 16, Greenfield Road, Scarborough.

LIGHTWEIGHT Motor Bicycle, low frame, wanted; give full particulars, including saddle, height, and faults; low price.—Bruce, 8, George Street West, Luton.

3½ h.p. Motor Cycle, 1907-8, well known make, speed gear, free engine preferred, magneto, new condition; £20-£30, spares; expert examination. — Write, "F.O.," 67, Holmewood Gardens, Streatham Hill.

NOTICE.—Wanted, Motor Cycle, about 3½ h.p., no rubbish; exchange valuable brood bull bitch, value 20 guineas, one pup made 9 guineas; sound investment.—Particulars, apply, Charles Birch-Mardol, Shrewsbury.

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SIDECAR, to fit Rex, must be light, and in good order; cheap for cash.—F. Spear, Beacon Hill, Bodmin.

MISCELLANEOUS.

THE Best Silencer made is Aldington's patent Silent, from 10s. 6d.—Below.

THE Ball Bearing Ideal Fan will cool any engine; 28s. 6d.—Below.

MY Footrests, reduced to 6s. 6d., are a luxury, spring rests, 17s. 6d.—Aldington, 59, Haydon's Park Road, Wimbledon.

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PULLEYS, Jap, 7in. 5s., 5in. 2s. 6d.; hardly used.—Oates, Castle Hedlingham, Essex.

TANKS of all kinds made to order.—Doggett, metal worker, 65, Turnmill Street, London.

WHIPCORD Breeches, latest cut; 10s. 6d. — J. C. Savage, 119, Donegall Street, Belfast.

OSBORNE Four-speed Gear and free engine pulley; £2.—Bowdon, 14, Stodart Road, Anerley, S.E.

TWIN Non-trembler Coils, new, unused, best make; 12s. 6d. each.—Farrar, Square Road, Halifax.

SHEDS for Motor Cycles, 45s.; portable.—Stevens, 82a, Leighton Road, Kentish Town, London.

ONE Pair Simplex Spring Fork Attachments, new, suit any machine; approval; 10s.—6, Saunders Road, Plumstead, S.E.

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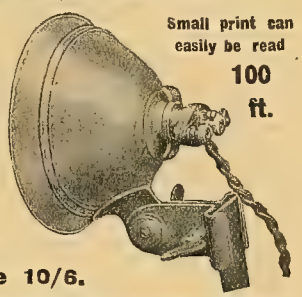
Weighs only 8 ozs.

Takes only ½ Amp.



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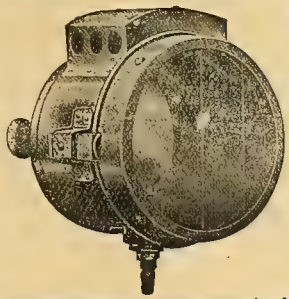
Gives light of the greatest power at a distance from the rider, but **NO DAZZLING GLARE** at close quarters. Consequently it requires no attachment to suppress the excessive glare, and its **full illuminating power** is **ALWAYS** concentrated on distant objects, as it is **ALWAYS** necessary that it should be. Fits the ordinary lamp bracket. The **generator** and bracket (included in the price) fit the fork of **all** motor cycles. The generator is neat and simple, gives five hours' light, without being three times the size of the lamp.



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Both manufactured suitable for ALL Machines.

The Carrier is 18in. long by 8in. wide, and attaches by clips to the back stays (not to the axle). Number plate is fitted to the back. Finished in black or aluminium enamel. Price **8/6.** The Stand is made with butterfly nut and bolt to clip it to back mudguard when not in use. Price **7/6.**

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See advertisements of New and Second-hand Motor Cycles, Premier Accumulators, etc., elsewhere in this issue.

The PREMIER MOTOR Co., Ltd.,

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FOR Sale, Eldorado V Belts, price, ⅝in., 9d.; ¾in., 10½d.; ⅞in., 1s.; 1in., 1s. 2d.—Pollin, belt maker, Spalding.

WHIPCORD Cycling Breeches, latest cut; 10s. 6d.; write for patterns. —Booth, tailor, Longton, Staffs.

FARRAR'S Quadrant Loop Frames for vertical engines; 32s. 6d. each, including front forks and handle-bar.

COW-VOICED Double Twist Horns, large size, terrific noise; usually 8s. 6d., my price 5s. 10d.—Farrar.

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CHEAP Motor Cycle Houses; catalogue sent free.—Portable Building Company, Felsham Road, Putney, London.

SMART Whipcord Motor Cycling Breeches, 8s. 6d.; patterns free.—Meredith's, Wear-well Clothiers, Northwich.

YOUR New Mount is incomplete without the Advance adjustable pulley; £1.—Advance Motor Mfg. Co., Ltd., Northampton.

EVERYTHING Made in cycle tanks except a fortune. Write for prices. —A. Phillips, 2, Strathnairn Street, Bermondsey.

CRABBE Brake, for front wheel, perfect, 6s.; new 4in. Quadrant plated pulley, 4s. 3d. — Alfred Proctor, High Street, Chepstow.

SPEED Indicator, Goodlad's, for motor cycle, registering 42 miles, worm gear, absolutely reliable.—Oates, Castle Hedingham, Essex.

DRUID Exhaust Valves, do not pit, burn, nor break; price 4s. 6d.; send old valve as pattern.—A. Drew, 74, Conybere Street, Birmingham.

6FT. ¾in. Lincona Belting, only run three miles; too large for present pulley, good as new; 12s. 6d.; approval, deposit. —Corbitt, Whitefield, Morpeth.

GRIFFIN Two-speed Gear and Free Engine, not run 20 miles, fit twin Rex; price £5.—W. T. Birchenough, jun., Gawsworth Hall, Macclesfield, Cheshire.

READERS Having Photographic Apparatus for sale should advertise in "Photography" Emporium, ½d. per word, minimum 6d. — Address, "Photography" Offices, Coventry.

SHARPE'S Universal Silencer, with cut-out (brass), 15s.; Bluemel's saddle, 6d, 5s.; Bowden back brake, 10s.; Lycett stand, 3s.; acetylene lamp, 4s., all new. —65, Upham Park Road, Chiswick.

MOTOR and Cycle Agents should read "The Cycle and Motor Trades' Review." Specimen copy post free on receipt of trade card. — "The Cycle and Motor Trades' Review" Offices, Coventry.

BULL'S-EYE Lenses. — Why not order now? Cut and polished flint glass, 3in., 3¼in., 3½in., 1s. 9d.; 3¾in., 2s.; 4in., 2s. 6d.; 4¼in., 3s.; 4¾in., 3s. 6d.; 5in., 4s. each; carriage paid—Payne, 149, Metchley Lane, Harborne

PUNCTURE-PROOF Bands (leather), rubber solutioned inside the cover yourself. Please give one a trial. We are sure of your order again. 2s. each, post free. — Barton, leather merchants, Meeting House Lane, Peckham.

AMATEUR Photographers. — Superior bromide enlargements, from your half-plate negatives (or smaller); 8 by 6 9d., 10 by 8 10d., 12 by 10 11d., 15 by 12 1s. 1d.; from prints, 6d. extra; postage free.—Greame, Wellesley, Whyteleafe.

PULLEYS for any motor, De Dion, M.M.C., 6s. 9d.; Antoine, N.S.U., Kelecom, Rex, F.N., 5s. 9d.; Peugeot, Brown, 5s. 6d.; Triumph, Fafnir, Sarolea, Minerva, 4s. 9d.; plated, guaranteed; carriage paid.—J. Perkins, High Road, Leyton, London.

G. T. RICHES & CO.,
19, STORE STREET, LONDON.
RICH DETACHABLE AIR TUBE,
Fitted with the new Protective Sleeve.

26in. x 2¼in., 14/6, 26in. x 2¼in., 15/6.
Your own tube converted. Please write for special list, with all prices for new tubes and prices for conversion, with instructions and hints. Our general accessory catalogue M free on application.

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At extraordinary prices. Genuine Calmon, with non-slipping tread, extra heavy, beaded, 26×2, **14/3**; 26×2¼, **16/3**; 26×2½, **17/3**; 28×2, **17/11**; 28×2¼, **21/-**; 28×2½, **23/6**.

BELTING, Grappler, best rubber grooved, ⅝in., **9d.**; ¾in., **1/-**; ⅞in., **1/3**; 1in., **1/6**.
Samples free.

BANGROFTIAN CO., 49, Bishopsgate Street Within, E.C., and Walthamstow.

Genuine Birmingham
"QUADRANTS."
A large stock of parts, still to be cleared. Write for latest List.
REG. SAMSON,
232, LADYWOOD ROAD, BIRMINGHAM.

EXHAUST VALVES.
2s. 6d. each. Cast Iron Heads; steel spindles; do not pit or burn. Thoroughly reliable. Send sketch or old valve as pattern. Cash with order; special terms to the Trade.
FRANK O. SPEKE, Motor Engineer, 177, Spencer Place, LEEDS.

MISCELLANEOUS.

2¾ h.p. vertical 1907 type engine, quite new, but wants contact breaker; 45s.

TWO-CYLINDER Rotax Car Coil, high speed tremblers and switch, walnut cast, nearly new, perfect order, 1907 type; 32s.

10 AMP. four-volt (nearly new) C.A.V. accumulator; will be sent charged, 9s.; 12 amp., ditto, ditto, 10s.—Hanson, Belmont, Ramsey, Isle of Man.

PAIR Nearly New 20 amp. Dinin accumulators, bargain, 15s.; 8ft. ¾in. Shamrock-Gloria belt and fastener, as new, 6s.—21, Batt Street, Lowfields, Sheffield.

CARRY Your Generator where accessible by using the Advance combined tank clip and generator bracket; price 2s. 6d.—Address below.

WHAT Causes your magneto to fail? Dirt. Send 4s. 6d. for the Advance patent leather magneto cover.—Advance Motor Mfg. Co., Ltd., Northampton.

MISCELLANEOUS.

GENUINE Vibren trembler coil, single cylinder, perfect condition; 8s.—26 Church Gate, Loughborough.

3 h.p. Griffin Gas Engine, shafting, pul 4 leys, fittings, complete; £10.—Fuller Hornchurch, Essex.

LONGUEMARE Automatic Carburette up to 5 h.p., perfect; 12s. 6d. — 5 Kingsley Avenue, West Ealing, London.

4 h.p. W. and P. engine, w.c., hardl used, absolutely perfect; £5, o nearest.—Meers, Limes, Ramsgate.

3½ h.p. a.c. Engine, New Orleans, con plete, 70s.; Bowden forecar brake new, 50s.; frame, springs, wheels, etc., c small car.—Arthur Cox, Alton.

350 Government Gauntlet Gloves, a leather, 2s. 6d. pair; 600 Bedfor cord riding breeches, 4s. 6d. and 5s. 6 pair; 450 selected trousers, 3s. pair; 5 police oil-skin capes, 3s. 6d. and 4s. 6 each; 600 officers' leather waist belts, wit metal clasp, 1s. 3d. each; 400 leathe leggings, 2s. pair.—Anscomb, 14, Londo Road, London, S.E.

5-6 h.p. Aster Water-cooled Engine, first-class running order, £10 10s 2 h.p. Clarendon engine, £30; 3 h.p. Fafn engine, £5; 3 h.p. M.M.C., £5 10s.; 1½ h. Minerva engine, £1 5s.; 3½ h.p. engin partly finished, crank case, cylinder, fl wheels, etc., £1 15s. the lot.—Wauchope 9, Shoe Lane, Fleet Street, E.C.

GIVING up the Motor Cycle Trade. Millennium carrier stand, 7s. 6 usual price 20s.; Vim stand (starts li free engine), 6s. 3d., usual price 17s. 6 Phillips's brakes, 4s., usual price 10s. 6 Vim flexible cable brake, 5s. 6d., usu price 12s. 6d.; hand levers and Bowd cables for valve lifters, 3s. 3d., usu price 7s. 6d.—Slack's Garage, Stockport

JANE'S Handle-bar Switches, 1s. each; large toolbags, 3s. 6d.; ⅝ belting, 8½d. foot; ¾in. belting, 9½d. foo ⅞in. belting, 10½d. foot; 1in. belting, 11 foot; separate generator lamps, 12s. 6 fog horns, 4s. 9d.; voltmeters, 5s. eac plain coils, 7s. 6d.; 20 amp. accumulato new, and guaranteed, 12s. 6d.; L.A spring forks, 15s. — Wauchope's, 9, Sh Lane, E.C.

ENGINES Re-bushed throughout fr £1; cylinders re-bored from 5s.; p tons supplied new from 7s. 6d.; ri from 9d.; valves, exhaust, from 2s. 6 inlets, from 1s. 6d.; pulleys, for a motor, Triumph, Brown, Fafnir, 4s. 9 Peugeots, 5s. 6d.; Rex, Antoine, Kelecc 5s. 9d.; De Dion, M.M.C., 6s. 9d; ab 4½in. diameter, 9d. extra; any parts m to pattern at lowest prices, accur guaranteed.—Tufnell and Co., Lightn Motor Works, Leytonstone.

FORECAR, less chair, suit any mach without removing front forks, C cher tyres, good order, 50s., or excha 2 to 3½ h.p. w.c. engine; pair footre 2s.; Minerva tank, complete with lev 9s. 6d.; Powell and Hanmer lamp, nea new, 9s. 6d.; Perfecta separate genera nearly new, 9s. 6d.; new Riches tube by 2, 10s. 9d.; 26 by 2¼, 11s. 3d.; pair l mer covers, 26 by 2, 22s. 6d. each; th covers and tubes are all new guarant —Harding, Halberton, Tiverton, Devo

CASH Bargains. — Kerry tricar lamps (oil), brass or plated, 12s. pair; motor cycle covers, 28 by 2, 2¼, and 26 by 2, 2¼, 2½, wired on, 11s. 6d. ea beaded edge, 13s. 6d.; best quality tu with valves, 26 by 2, 2¼, 2½, 6s. 9d. ea non-trembling coils, two-cylinder, each; Vim back brakes, 6s. 3d. ea Humber petrol and oil tanks, 9s. ea Whitley carburetters, 13s. 6d.; fasteners, 8d. each; voltmeters, 3s. each; the Hub two-speed hub, for m cycle, £2 10s. each; cash with order; proval.—Bastone, 217, Pentonville R King's Cross, London, N.

TRADE ADVERTISEMENT

CLEMENT-GARRARD Interchange Parts.—The Garrard-Maxfield M Co., Aston Road, Birmingham.

F.N. Motors.—Trial runs by appo ment; full particulars on app tion; lists free.—The Sussex F.N. M Agency, Prudential Buildings, N Street, Brighton.

THE MOTOR CYCLE

Vol. 6. No. 266. April 29, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

Unattached Riders.

WE trust we shall not be thought too insistent if we return once again to the subject of unattached riders. The correspondence we receive for insertion in our columns is quite sufficient excuse for a further ventilation of e subject, if any is required, and we particularly refer aders to a letter from the secretary of the Cyclists' ouring Club published this week as a proof that our ords are true, viz., that if the A.C.U. (the motor clists' organisation) will not cater for unattached lers, there are other bodies eager and willing to do so. The number of motor cycle members of clubs iliated to the A.C.U. or Motor Union both in London d the provinces is said not to exceed 3,000; thus ere are thousands of unattached riders awaiting velopments. These riders are, in the majority of ses, not desirous of joining a local club either for the rpose of engaging in competition or for sociability. ey therefore object to pay a subscription of half a inea per annum or more to a provincial club to cure the advantages of affiliation or to join the C.U. direct as a provincial private member to gain e same end, and, as our columns will show, several otor cyclists have written to *The Motor Cycle* in pport of these views.

Now the officials of London and provincial clubs ubtless consider that a scheme for the direct affiliaon or association of unattached riders to the A.C.U. uld prevent the expansion of their present membership. We do not agree with this view. The class rider who wants direct association at a moderate fee not the man to join a club organised for the purpose holding competitions, meets, etc. He does not want to compete in hill-climbs or to have anything to do with racing; he desires to tour at home and abroad, and receive the benefits of membership whilst touring, and obtain legal advice and assistance if he gets into trouble with the authorities. If any local club is afraid of losing members on account of direct association it merely proves that it has not sufficient attraction in itself to secure the sporting class of member.

The Association Scheme.

IN addition, the R.A.C. has a scheme of direct association wherein the local club benefits, *i.e.*, for every local motorist who associates himself with the R.A.C. direct the local club receives a portion of the subscription paid to the R.A.C. by the local associate. It is hardly necessary to add that the local club must be itself affiliated to the R.A.C. Could not a similar scheme be instituted by the A.C.U., and if not, why not? The fee we suggest for unattached riders to obtain certain advantages, such as touring facilities, legal advice, the right to exhibit the A.C.U. badge, etc., but not free registration for competitions, admission to papers and discussions at the Club, the use of the Club room, or the copy of *The Journal* or handbook, is five shillings.

The present subscription—half a guinea for country and a guinea for town members, with an entrance fee of 5s.—is not too high for the full list of advantages obtained, but it is time the A.C.U. recognised that there are other things to cater for besides competitions and racing, and that the coffers might easily be swelled with the unattached riders' subscriptions, instead of allowing their money to pass to the C.T.C. and M.U., and other bodies who appear ready to cater for them.

The question which arises in our mind is: Does the A.C.U. wish to be the representative motor cycle body or merely the governing body of the sport and pastime of motor cycling? If the latter is its only aspiration, the rejection of any scheme for unattached riders is the correct one, because the sport can be governed by a comparatively small body who merely require to meet, make rules, issue permits, and conduct the routine business of any similar organisation governing any other pastime. If, on the contrary, its ambitions soar higher, the policy of rejection is to assist one or two other bodies, such as the C.T.C. and M.U., neither of which has done anything of any great assistance to motor cyclists as a class, although the M.U. work on behalf of all classes of motorists must have done a good deal towards ameliorating the motor cyclist's lot, particularly in the way of preventing pernicious speed limits.

Will anyone who considers our arguments bad explain how the C.T.C. has been enabled on a 5s., and for a time 2s. 6d., subscription to pile up a big reserve fund? There are now far more motor cyclists in the kingdom than there were cyclists when the C.T.C. first saw the light.

The very existence of the A.C.U. depends upon funds. At the present time it has a grant from the R.A.C., but there is no reason why it should continue to receive a grant if it can make its own department pay. Neither is there any necessity for it to be absolutely independent of the R.A.C., although paying its own way, and the scheme is not advocated with that idea, but more to band motor cyclists together and keep them from becoming members of three or four different organisations, all with different aims and views which must clash eventually.

The executive of the A.C.U. might be led to think that any scheme for unattached riders would upset the affiliation scheme, but there is no reason why it should do so if the unattached rider is given to understand by documents or otherwise that he is not having the same advantages as an affiliated member of a provincial club, and the fact that he is not a member of a provincial club causes him to pay slightly more for the advantages he receives from the A.C.U.

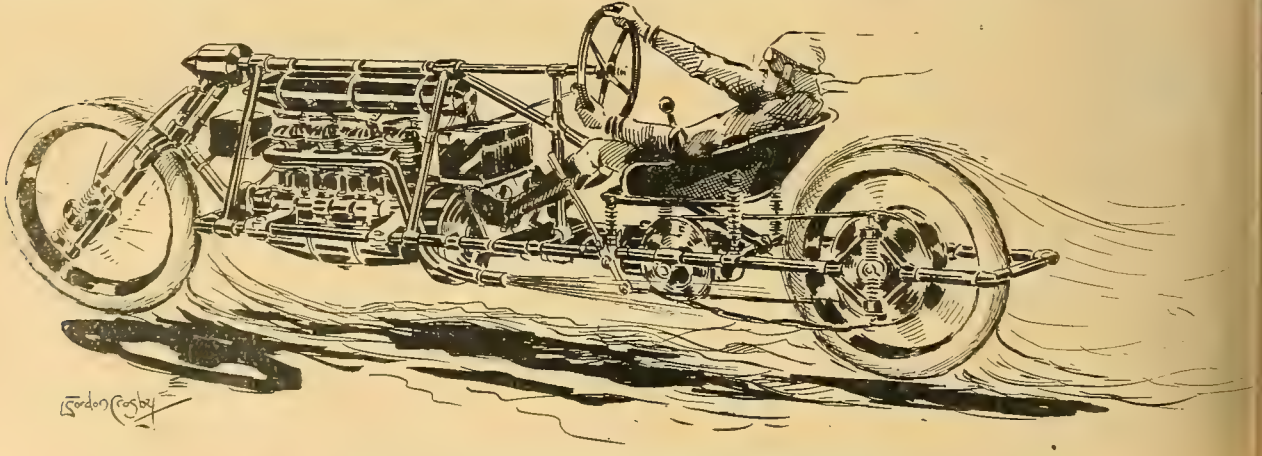
Finally, the unattached rider must be catered for, and why the A.C.U. cannot cater for him it is difficult to say, but it would be at least interesting to hear the exact reason why the executive are averse to affiliating unattached riders at a moderate fee.

Handicapping at Brooklands.

ENCOURAGED by the large number of entries received for the first open motor cycle race at Brooklands, the B.A.R.C. has decided to hold a motor cycle handicap plate of twenty-five sovereigns at the forthcoming meeting on May 9th. The conditions are not yet issued, but we understand that the engine size limit has been increased from 80 mm. by 98 mm. for twin-cylinders to 85 mm. by 95 mm. each cylinder.

With regard to the handicap, we should like to offer a suggestion which was recently made in our pages that in order to encourage slower machines the handicap should be framed upon the times made in a previous scratch race. The idea was first suggested in *The Autocar*, and was tried at Brooklands on April 4th, and resulted in some very close finishes. Owing to the length of the race (twenty-two miles), the proceedings were somewhat tedious in running off the scratch race, but in the case of the motor cycle handicap, if confined to five and a half miles, there would not be the slightest difficulty. The handicap would be framed as follows: A scratch race would be run everyone starting off the same mark, and times would be taken for each competitor. To prevent "roping," if a competitor improved upon his scratch time by more than an experimentally predetermined number of seconds, his fastest time would not count, and his time would be counted from the speed accomplished in the scratch race. As an example of the handicap, if the scratch race A made the fastest time, and B was 10s. slower, B would receive 10s. start from A; but if A only made the same time as in the scratch race and B improved on his scratch time by $4\frac{3}{5}$s., he would have beaten A by $4\frac{3}{5}$s. This is allowing for a predetermined 5s. allowance between the times made in the two races.

We have received a copy of the 1908 catalogue of Adler motor cycles. The British representatives for these machines are A. Muller and Co., 184, West North Street, Aberdeen. Adler motor cycles are made in single and twin-cylinder patterns, and with or without forecar attachments. The firm also manufacture a two-speed gear and free engine called the Kupplex. This gear fits on the engine-shaft, and is of the ordinary epicyclic type, giving a reduction of 35%. A catalogue will be sent to any reader on application.



AFTER BROOKLANDS. A DREAM OF THE FUTURE.

The Cost of Motor Cycling.

AN ACTUAL EXPERIENCE.

BEING an interested reader of *The Motor Cycle*, and seeing from time to time questions appear from correspondents as to the cost and upkeep of a motor cycle, I thought that the attached list of mileage and cost would be useful and interesting. I have kept a detailed log for the year, in which every item has been entered. I do not claim anything remarkable, but simply send it as an absolute *bona-fide* account of one year's running by an amateur. To me the cost has come out considerably cheaper than I anticipated, for I have given the machine some very severe work. I have ridden in all weathers—rain, hail, snow, wind, and fog—and have never had a misfire on any occasion, except last July, when the fibre ring of magneto got worn a bit, and which I had put right on discovering the cause. I have owned five machines since October, 1904, therefore my experience should be of value.

Machine: 3½ h.p. 1907 Triumph.

MILEAGE AND EXPENSES FROM MARCH 25TH, 1907, TO MARCH 25TH, 1908.

Mileage:

March	225
April	1,366
May	565
June	1,014
July 1st to 12th	96
August (did not ride owing to absence abroad)	——
September (did not ride owing to absence abroad)	——
October (did not ride owing to absence abroad)	——
November 18th to 30th	106
December	770
January	307
February	723
March (up to 25th)	304
Total	5,376

Longest ride, 260 miles; time, 11h. 15m.; average, 23 miles per hour.

Fastest ride, 41 miles in 1h. 20m.; average, 30¾ miles per hour.

Severest test on machine, February 21st, 154 miles; February 22nd, 151 miles; total, 305 miles. During this particular ride the roads were awful, and on the latter day a terrific gale blew, accompanied with rain. There was also a large touring bag on rear carrier.

Expenses:

	£	s.	d.
Cost of repairs, cleaning, and storage	6	6	7
Additions and luxuries (not absolutely necessary)	5	3	3
Petrol, oil and carbide	5	9	6
Total	£16	19	4

Average cost per mile, all included = .76d., or ¾d.
Total consumption of petrol, 62 gallons.
Average distance per gallon, 87 miles.

TYRES.

Clincher cover on back wheel, March 25th to May 1st, 1,366 miles; Palmer cover on back wheel, May 1st to December 5th, 2,001 miles; Clincher cover on back wheel, retreaded December 5th to February 7th, 929 miles; average mileage for two tyres, 2,148. The covers still have more wear in them, but prevention is better than cure.

Number of new inner tubes (both back wheel), two. Front tyre untouched till fortnight ago. Total number of punctures for the year, seven. Four side-slips, and all harmless.

BELTS.

First belt, Shamrock Gloria, *945 miles; second belt, Shamrock Gloria, 2,000 miles; third belt, Shamrock Gloria, *929 miles; average mileage per belt, 1,178.

H. C. B.

*Short life owing to bad weather chiefly.

With reference to the article, "Chain *v.* Belt," in our issue of April 1st, the Hanover Rubber Co., 29-31, Old Street, E.C., ask us to point out that they make an extra large Shamrock-Gloria belt $1\frac{3}{16}$in. wide, which they specially recommend for high-powered motor bicycles, particularly when used with a sidecar. A suitable pulley for this belt turned to an angle of 36° can also be supplied by the same firm.

Lined up for the first heat of the Five Miles Handicap on Canning Town Track, April 17th, for 76 × 76 m.m. engines. Colver won in 5 min. 52⅘ secs.

Touring on a Twin.

By F. DUNCAN HINDLEY.

AFTER three years' service from my trusty 2¼ h.p. single-cylinder Kerry, the thirst for power came, and with it a 5-6 h.p. twin-cylinder Kerry motor bicycle. I immediately decided that a tour in Ireland would be the only way to thoroughly enjoy the new sensation, so after a trial run of fifty miles I mapped out my programme for a couple of weeks up to Holyhead and then to Wicklow before meeting a friend for a few days in the wild west of Co. Clare.

I started with full confidence, in perfect weather, and covered mile after mile with ease, and only an occasional touch of the air lever on the down grades, proving that high power with a medium gear (four and a half to one), right mixture, and ignition advanced gives the utmost flexibility, and good average running without frequent adjustments of the levers.

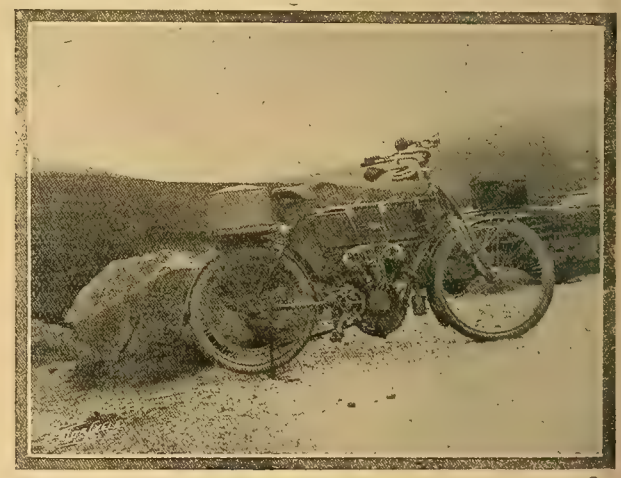
Through Watford, Boxmoor, Berkhamsted, Tring, Bicester, to Banbury without a pause or misfire—a sixty mile run as smooth and enjoyable as any mechanical transit yet invented. A rest for lunch, and then on through Stratford-on-Avon, up the slopes to Alcester, then up and down country till Wales is in sight, and that pretty border town of Bridgnorth stands up with the Severn running round its rocky foundations. The curved narrow hill up into the market square is taken at legal speed, and a first day's ride of 120 miles only acts as a *hors d'œuvres* for my touring appetite.

Muddy Roads on the Second Day.

In the morning I found rain and mud all around, but at 8.30 I was off in the direction of Shrewsbury, travelling well up the long hills, when suddenly I saw in front a torrent of water running across the road, and found a reservoir had burst and the water had cut a channel through the bank, and had swept down the hill for three hundred yards, tearing up the macadam and leaving huge ruts. As riding was impossible, the belt was taken off and threequarters of an hour spent in pushing those 2 cwts. up a quarter of a mile. The rain had left plenty of liquid mud, making riding less enjoyable. The afternoon was fine, but the Welsh roads were more treacherous, and the grey clay and smooth tyres did not agree. I, however, got safely into Pentre, where the comfortable Voelas Arms gave me welcome.

I was off again at 9 a.m. to catch the mail steamer at Holyhead. The roads had dried, and I let my machine out, but soon it began to misfire badly. Bettws-y-Coed is all downhill, so I got there easily, and called in at the Wellington Hotel Garage to trace the cause of delay, and on testing the accumulators found they were both run down, evidently having "shorted" the day before during the rain. I proposed to join them up in series, but was positively assured by a motor car owner that the combined current would not last me five miles, but as the road is all uphill to Capel Curig (a distance of nine miles) I decided to go on, and if I should fail I could free-wheel back; but I found increased power, and romped up the pass above Capel Curig, then down to Bangor, and across the fine stretch of Anglesey, with an hour to spare for the boat.

At Kingstown I left my machine at the garage to have the accumulators charged up during the night, and next day started to cross the Wicklow Mountains from Glendalough—that delightful and historic centre of ancient chivalry where in the seventh century St. Kevin founded seven churches. Up the wild slopes to the old lead mines and lovely moors, where the snipe and grouse attract only the keen sportsman, where white heather may be gathered, and where lakes lie



At the summit of Wicklow Gap.

undisturbed under the towering cliffs of Thonlagee, and Nature alone reigns supreme. The Gap is 1,570 feet high, and the grass-covered road is splendid to ride on. Although my destination was Athy, I rode to the Curragh Camp, and saw the Irish Yeomanry Sports, at which my stop-watch was commandeered for timing the races. Over the Curragh I let my engine "rip," and got to the town of Athy, named after an Irish chieftain Ae, who was killed there in the second century. The old castle is noted for its thick walls, and was built in 1500 to defend the bridge and River Barrow.

Touring under Difficulties.

Next day I rode over to Tullamore to meet my friend, who rode a light Ariel, and the difference in power and size of the two cycles looked absurd, but in actual practice they were more equal, and the light-

Touring on a Twin.—

weight proved a model of reliability. Within ten miles we had lost our way, and with that discovery came a double puncture in my back tyre and torrents of real Irish rain. Our destination was Galway, so we hurriedly patched up the tyre and set off, but the rain was too heavy to ride in, and we stopped at a cottage

On board the "Countess Cadogan" at Banagher.

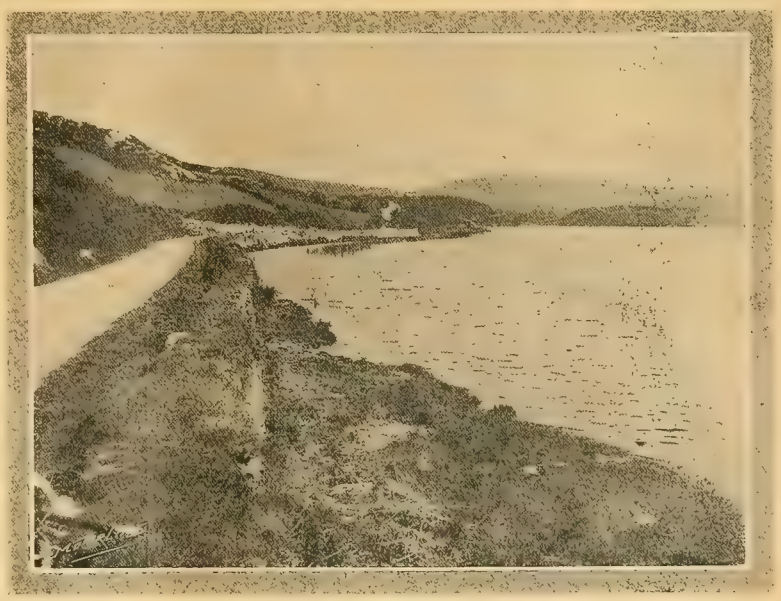
and entered with our machines. The mud-floored room contained a donkey, two pigs, a calf, and a dozen or more chickens, besides the owner, his wife, and three children, and all except the calf evinced the greatest delight in having the "real motors" in their "house." The roads were swamped, and as my tyre refused to stay up without inflation every two miles we decided to spend the night at Ferbane, and its only hotel made us as comfortable as it could. Ferbane has still the barracks with metal cage fitted with loopholes to fire up and down the main street, and the stocks are still left in the market place. The rain lasted all night, so we again changed our plans, and rode to Banagher, and boarded the little steamer which runs down the Shannon and through Lough Derg to Killaloe—thirty-five miles in all. As the day cleared the sail was delightful. At Portumna we passed under the 75oft. bridge into Lough Derg, passing a Dominican monastery ruin founded in the thirteenth century. I thought what use would be made of such glorious scenery and waterway if we had it here in England. Killaloe is the only town of importance on its banks, and, besides being one of the finest angling stations in Ireland, has one of the oldest cathedrals, which was founded in the sixth century by St. Dalna, and near the fine old bridge are found traces of Kinevra, the favourite palace of Brian Boru. We spent the evening in a coracle, fishing with varied success until 11.30 p.m.

A Change of Plans.

Owing to the uncertain weather, we again changed our plans, and, being free and independent of all organised modes of travel, we decided to try the bleak mountain roads of Co. Clare, with its many lakes, and get to Kilkee, the Atlantic popular resort of Dublin in summer. The roads were good, while the views were finer than anything seen in Wales, but five miles before Kilkee the roads became worse than paved ones could ever become, and we were glad to get into the town of whitewashed cottages, stretching for a mile round the pretty bay, with the "calm" Atlantic coming in waves which gave one the impression of supreme power and force. A plunge off the stone pier gave us an extra appetite, and after dinner we climbed among the giant rocks eaten away into huge caves by the sea. We were told that the chemist was the only man who might stock petrol, but a pint of benzole was the nearest thing he had, so we telephoned to Kilrush for a two-gallon tin to come by the celebrated West Clare Railway. We rode to the station, to find the can and a bill of 7s. 6d., "5s. being the minimum carriage." This we paid under protest, and set off to see the cliffs of Moher, which rise 300 feet sheer out of the Atlantic, and to see Spanish Point, where many of the crew of the Armada were buried. Coming back, we saw hundreds of fires, which light up the whole west coast of Ireland from every village and hill on the night of St. John the Baptist.

Quits with the Railway Co.

The following day we decided to take the train to Kilrush to escape that awful road, and were amused to find that the total amount of two first-class tickets and two motor cycles containing two and a half gallons of petrol was 1s. 6d. less than was charged for that one tin of petrol the day before, so we cried "Quits" with the toy railway, which is quite independent of time, control, or custom.



Lough Derg at Killaloe.

Touring on a Twin.—

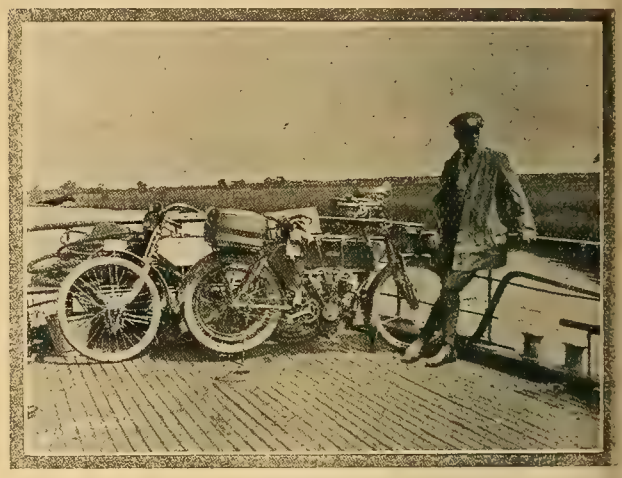
Ruins of Six Churches.

Kilrush is a small seaport at the mouth of the Shannon, and a visit to Scattery Island, one and a half miles to sea, should be made to examine the ruins of no less than six churches, which were founded in the sixth century by St. Senan, who also built the Round Tower, which is now one of the best examples, and stands 120 feet high. We followed the north coast of the Shannon up to Clare, with its ancient ruined castle, which was built by the O'Briens, and the abbey founded in 1195 by Donall O'Brien, King of Munster; then down to Limerick, one of the oldest and most historic towns in Ireland, the Royal city of Brian Boru, where the castle built by King John is one of the best Norman fortresses in existence. Then through the disused silver mines across the notorious cattle grazing moors of Roscommon and Roscrea to Borris in Ossory, which was the leading pass into Munster, and by the castle built in its defence by the Fitzpatrick; then across the Slieve Bloom Mountain into the Queen's County, flat and uninteresting, when suddenly I felt the machine pulling up. Taking the belt off, I was towed into Maryborough by the little Ariel. The gudgeon pin had come out and jammed the back cylinder, so we put up for the night while I had the engine overhauled. Maryborough, chief of Queen's County, was named after Queen Mary at the time that the names of King's and Queen's County were adopted in honour of Philip of Spain and his wife.

The Return Journey.

I here said goodbye to my companion, after a most interesting and delightful trip in one of the most historic and best touring centres a motor cyclist could wish to see. I rode down to Waterford by Kilkenny, another historic city, possessing the castle which was built in 1172 as a fortress by Strongbow, and is open free to the public. Waterford, like all other Irish towns, has a romance such as no other town can boast of. It was a Danish settlement in the ninth century, and now possesses one of the finest inland harbours. Crossing to Milford Haven, I toured for a couple of days through South Wales and the Midlands to London.

There is no doubt that a twin motor cycle requires more care and greater attention than a single-cylinder, but for ease in running and hill-climbing the latter cannot be compared to it, and as one who only uses the motor cycle for touring I should certainly not return to the single-cylinder again. Great care, however, must be given to the inlet valves and springs, and also to the contacts of the make and break, or misfires will result, and in trying to overcome these too strong a mixture will be given, which will quickly heat the engine. Lubricant should be given in small quantities, say a pumpful every ten miles, and the exhaust lever so fitted that the back valve is slightly raised before

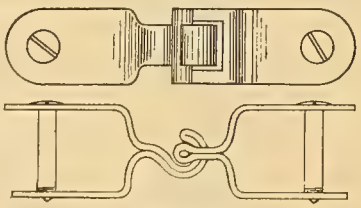


On the Shannon.

the front, enabling the front cylinder to be fired alone for traffic and at corners. I find the four-ply Watawata belt a great improvement on all others. Mine was not touched during the trip, and in rain and mud showed no sign of slip. The Peter Union band, which is fitted loose between the tube and cover, saves punctures, and prevents the tyre overheating or pulling out the valve through creeping. Although I am a motor car owner (8 h.p. Rover), I cannot get the same pleasure out of a run on the car as with the speedier cycle, which only requires the throttle more open to take it up a hill at the same pace as on the level, and which glides along in the best track and takes one with comfort through any district with rideable roads.

All petrol tanks should be fitted with an air valve to the filler cap. The usual hole provided allows petrol to slop over when tank is full, causes waste, and is dangerous if situated over a hot exhaust box.

A sample of the new Celerio detachable fastener for V belts has reached us from the South British Trading Co., Ltd., 13 and 15, Wilson Street, Finsbury, E.C. This detachable fastener is so simple, and yet so useful, it is strange that no one thought of the same idea before. Although it is readily unhooked when the belt is off the pulleys, it is next to impossible for the fastener to come apart when in use. Owners of machines fitted with adjustable pulleys should find this fastener particularly useful. It is made of spring steel, oil tempered.



The East London Rubber Co.'s latest motor catalogue is to hand. This is a most extensive and well arranged publication, which includes almost every accessory a motor cyclist requires. It also lists the Kerry 3 h.p. single-cylinder and the 5 h.p. twin-cylinder motor bicycles, both of which machines are built up with English frames and fittings. Another speciality with which this firm deals is the Kerry-Abingdon tricar—a light tricar fitted with a twin-cylinder air-cooled engine, chain drive and two-speed gear. In the event of any motor cyclist requiring accessories or fittings at short notice he may reckon that his agent will be able to procure them from the East London Rubber Co., Great Eastern Street, E.C., in the shortest possible time.

OCCASIONAL COMMENTS.

By "IXION."

Hooter Clips.

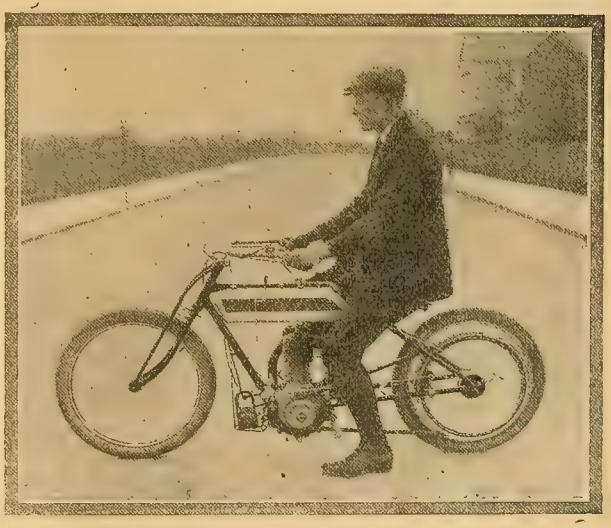
A note in a Yankee motor cycling journal has spired me to complain of the clips fitted to the erage hooter. I don't know whether I am more patient with the makers for selling such miserable ps for ten years or with myself for not loudly com-aining of them before. There are one or two horns the market fitted with special clips affording a firm ip of a ⅞in. or 1in. handle-bar, and with bolts that ither shift nor break; but I do not think there are ore than three of this type. The remainder first ift round like a badly girthed saddle, so that the rn gets underneath the steering bar. Then the oter slides gently down to the middle of the handle-rs, and jingles against the forks. The result is at for many years past I have always put a strip of ather and emery cloth under the clips, and in dition strapped the twist of the horn to the bar with short strap, and with these precautions the horn will metimes shift. In addition, if one attempts to ghten the bolts their heads are as likely as not to ist off, and the locknuts always get lost within a few ndred miles. Why does not every maker of a otor cycle provide a permanent attachment for the rn brazed to the handle-bar? Makers of horns uld soon provide a corresponding clip which could t shift. Some horns have another serious failing, wit, that if the bulb be unscrewed it is impossible to tract the reed without using a tool on it, and it often s so tightly that it cannot be got out without damage. suppose most riders know that when a horn is flicted with a fit of silence a speck of dirt on the etal tongue is almost invariably responsible; so the re is not to alter the set of the tongue, which usually ins the reed, but to remove the speck of dust with a p of paper or a fine wire, which should be slipped tween the tongue and reed without bending the rmer.

The Riley Gear Box.

A rider informs me that after two seasons' use of a h.p. Riley tricar, he experiences some difficulty in gaging his top gear. If he opens his gear box, he ll speedily behold the reason of this. Properly ndled, these gears will go in like grease, no matter w old the tricar may be. When the gear box is new, ere are no gears in the world easier to change, thanks the patented system, and there are plenty of three ar old tricars of this make on the road, the gears of iich change as easily and as silently as when they re new. Difficulty in changing results from slamming top gear hundreds of times over with the engine cing hard. This process in time burrs over the edges the dog clutch, and makes it first difficult, and ally impossible, to engage top gear at all. If my rrespondent has ever been a passenger on a decently iven car, he will have noticed that before declutch-g for a change up, the driver closes his throttle so that when the clutch is taken out the engine does t gain speed or race. The higher gear is then slipped the clutch gently but quickly re-engaged, and the rottle then promptly re-opened. This is the correct thod for the Riley gear box, too, although it will nd many a hundred miles of abuse, such as my correspondent has evidently given it. I should recommend him to open up his gear box at once, and inspect the third speed dog clutch. It may not be so badly burred that a new clutch is necessary, and very possibly a clever mechanic will reface it for him. There is an alternative solution—that wear has set up at the joints between the change speed lever and the drawbar passing horizontally through the top of the gear box, so that when his lever is in the third speed notch the third speed nick on the drawbar is not opposite its spring trigger. But it is 100 to 1 that by faulty changing he has burred the dogs.

Another Twin-cylinder Puzzle.

I had made a resolve not to write about any more apparently difficult diagnoses of engine troubles, as they are usually sent me by comparative novices, who grievously misstate facts, and cause one to waste much time and thought over a matter so simple that any average repairer or practised amateur could set right in a moment if he had the machine in front of him.



Guy Lee-Evans, a successful competitor in the Cudham Hill Climb. He is seated on the 3½ h.p. single-cylinder Rex he rode at Brooklands on Easter Monday.

But I have just received a puzzle from a practised rider that promises to require much solution, and will probably turn out to be a combination of several troubles. Here is the description as given me:

Engine.—6 h.p. twin, a.o.i.v., dual ignition, H.T. magneto, battery and trembler coils, B. and B. carburetter.

Tested points.—Both ignitions perfect, mixture perfect (responsive accurately to air lever), carburetter clean, gauzes clean, petrol supply perfect, all levers rigid in any position.

Symptoms.—Engine gets very hot, particularly in front cylinder; runs very irregularly, suddenly shooting ahead and then dropping back without levers being touched; government by throttle impossible; engine will not run on less than half-throttle, and on throttle being opened an extra $\frac{1}{32}$in., instantly bounds away at full speed.

QUESTION & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not **must be accompanied with a stamped addressed envelope for reply.**

To Prevent Tyre Creeping.

I have a 3½ h.p. Minerva with an extra heavy Continental tyre on the back wheel. This has started to creep, and pulls the valve out of its seating. Please tell me why it does this, and also if there is any cure except security bolts? I may say that my weight is only 8 st. 8 lbs.—H.G.A.

Through continual use the tyre has probably got to fit the rim more easily, consequently it does not grip the edges of the rim to the same extent. This trouble can only be cured by fitting security bolts. Inflate the tyre harder.

What's Wrong!

My 3½ h.p. Peugeot motor cycle has run well uphill, but now will not run unless all throttle on and all air off. Compression good. I have had engine down and thoroughly cleaned it, carburetter clean, spray clean, and petrol flowing freely. Float and needle appear to be all right. When I get running and close throttle and increase air, explosions occur in silencer badly. I use accumulators. —H.O.A.

It seems very much as if something is obstructing the petrol supply. Occasionally foreign obstacles float about the carburetter float chamber and get temporarily wedged in the petrol orifices. As soon as the suction from the engine ceases they float clear, so that their presence cannot be detected immediately. In the meantime, however, you might try a larger jet, if after testing the level of the spirit you find it to be correct. Then turn your attention to the automatic inlet valve, as it may have something to do with the matter.

Low Gear and Overheating.

I have a 3 h.p. air-cooled Humber tricar, with chain drive, free engine clutch, to which I think of fitting a two-speed gear. I should be glad to know if you can recommend a gear for good serviceable work. I am told that a two-speed gear is not satisfactory on an air-cooled engine, as on the low gear engine gets too hot. Is this correct? A friend tells me I must have a water-cooled engine when a two-speed gear is fitted.—COOL GEAR.

As your machine is chain driven, and resembles the Phelon and Moore, their gear will probably fit your machine the easiest. Certainly, with an air-cooled engine greater skill in driving is necessary, but as the engine is not a very big one you may not have very much trouble. Provided you keep the throttle closed as much as possible, lubricate freely, and the engine is in proper order, overheating should not be experienced unless your district is very

An exciting tussle over a distance of three miles on the Cannng Town Track, between C. R. Collier and H. V. Colver. The latter won by the small margin of three seconds.

hilly. Try running without a fan first of all, but if you experience excessive overheating you had better have one fitted later.

Commencing Motor Cycling.

I am thinking of going in for a motor bicycle, but I know absolutely nothing about them. One or two friends say buy a second-hand one to start with; some say get a new one. Please give me your advice. Also will you recommend me a good make, and state what horse-power, tyres, etc., might suit me. I want a machine for week-end touring and country riding, etc., not for business purposes.—L.L., Cheshire.

It is not so necessary nowadays to practise on a second-hand machine before buying a new one, as the driving and control have been rendered so very simple. Of course, it would be a go idea to go in for a first grade sing cylinder machine, second-hand, in orc to get a little experience. If you lo through our advertisement colum and send us a numbered list of t motor bicycles which you think wo suit you, keeping a key for referen we will place them in order of merit.

How to Prevent Explosions in Silencer.

I have been out for the fi time on my new 3½ h tourist Rex (magneto). T machine ran well, but on r ing with a raised exha without using the switch there v repeated and continuous firing in exhaust box or silencer. If the swi alone was used without rais the exhaust, on releasing the swi and restoring the ignition there a loud explosion in the silencer. I raised the exhaust and used switch, immediately I restored current, keeping the exhaust rais the explosions in the silencer rec menced, or if I dropped the exha lifter and switched on (eit simultaneously or otherwise), th was again an explosion in silencer. How can I avoid it F.M.

You can prevent the explosions closing the air and throttle imme ately you raise the valve lifter. T noise is, however, usually due to a stricted silencer or running on an i perfect mixture.

Passenger Attachment and Sluggish Starting

What is the best method taking a passenger on my h.p. Centaur motor bicyc Either trailer, forecar, or si car? I have great difficulty starting the engine when co though I put paraffin in the va tap so that the engine is not s with valve lifted. Accumulators over four volts, and I have tried n plugs, and all the wires are right far as can be seen. The coil is trembler. When warm the eng will start up first time. What I w to know is if I can have anythi done so that the machine will st up first or second turn when cold NOVICE, Norfolk.

You would probably find the sidecar be the most satisfactory means of t

ng a passenger. A free engine would e almost indispensable, but a two-peed gear would be better still. Pro-ably the trouble in starting is because ou get too much air through the car-uretter at slow speeds when the ngine is cold. This may be overcome y fitting a shutter over the air intake, s described in *The Motor Cycle* of ebruary 12th, page 121, or fitting the ext size smaller air adapter if the car-uretter is a Longuemare.

Fitting Fibre Rings.

I find that when ordering new fibre rings for my twin-cylinder magneto, Simms-Bosch, these are invariably sent too large in diameter. Up to the present, I have filed or cut same to make a fit with the holder. By this method I find it practically impossible to make an exactly concentric fit, thus causing a larger break of the platinum points for one cylinder than the other. Can you kindly inform me of some method of fitting these rings, whereby a concentric fit is assured?—E.C.S.

he best plan is not to attempt to re-uce the size of the ring at all. These ings are purposely made rather too arge, so that when they have shrunk ney are still a good fit. The best way o proceed is as follows: Set the groove n the ring opposite the little stud in ne ring holder, then get two pieces of at wood, place one against the ring nd the other against the holder, put ne lot between the jaws of a fairly arge vice and screw up carefully and radually, when the ring will be forced ome without difficulty.

Misfiring on Hills.

I have a mysterious trouble with my 3 h.p. Triumph motor bicycle which I shall be glad if you can explain. It runs splendidly on the stand, fast or slow, as regular as one could wish. So it does on a level road or down hill. But going up a hill or even a slope it begins to misfire about half-way up if long, or right on the crest if short. On all the hills round here I know almost exactly where it will commence to misfire. As soon as it gets over the crest of the hill it is all right again. It will miss going up a slope, although the engine is running fast. It is a 1905 (October) machine. Can you suggest an explanation? The wiring and accumulators seem all right, and the platinum points on the contact breaker seem to make a good connection, and the plug is all right.—G.N.M., Brighton.

Without actually seeing the machine it s difficult for us to say what is the natter with it, but from what you state n your letter it appears to us that the etrol is not reaching the carburetter n sufficient quantities. We should herefore recommend you to carefully verhaul the carburetter. The misfir-ng may also be due to you failing to lose the air lever slightly when the peed of the machine falls off. Try the parking plug points closer together, nd if battery ignited attend to charg-ng of accumulators.

Engine Ceases Firing on Rough Roads.

I have a 3½ h.p. White and Poppe motor cycle, assembled with Chater-Lea fittings. After adapting a larger carburetter, viz., Model H, and dispensing with a Model E, this machine has been a constant source of pleasure, and is beautifully sweet in running, but during the last few days the carburetter seems to have become affected. The symptoms are that when traversing bumpy ground motor ceases to fire. I open extra air momentarily and that remedies it. Why, after fifteen months, should this occur? I have not even fitted new inlet or exhaust valve springs (m.o.) Could this account for the sudden trouble, owing, perhaps, to the sluggish closing of valves? I might add that I have had carburetter down, and it seems faultless, and needle still fits perfectly and is quite petrol tight when down.—W.W.

The trouble seems to be due more to the carburetter than to anything else. The best thing to do is to remove the jet and see how far up the jet tube the petrol rises. It should rise to within about ⅛in. of the top. If, however, the petrol is normally above this point, the carburetter becomes flooded over rough roads and opening the air temporarily cures the trouble. If you cannot cure the trouble you should fit a controller over the needle valve to prevent the vibration altering the level of the spirit.

Backfiring in One Cylinder.

I have a 6 h.p. Fafnir tricar, and every time the engines work, one cylinder repeatedly fires back into the carburetter. On examining the cylinder I find that on the explosion stroke the inlet valve opens a little and allows a little of the gas to escape. I should be pleased if you could suggest a remedy. Also when the piston rises on the compression stroke the inlet valves leak. I have ground both in properly and tried springs of different strengths, and still to no purpose. I may mention that after the engines start up they eventually slow down, and will not run at a uniform speed when the tricar is still. Do you think that the back firing poisons the gas as it comes from the carburetter, and thus destroys the mixture?—L.T.G.

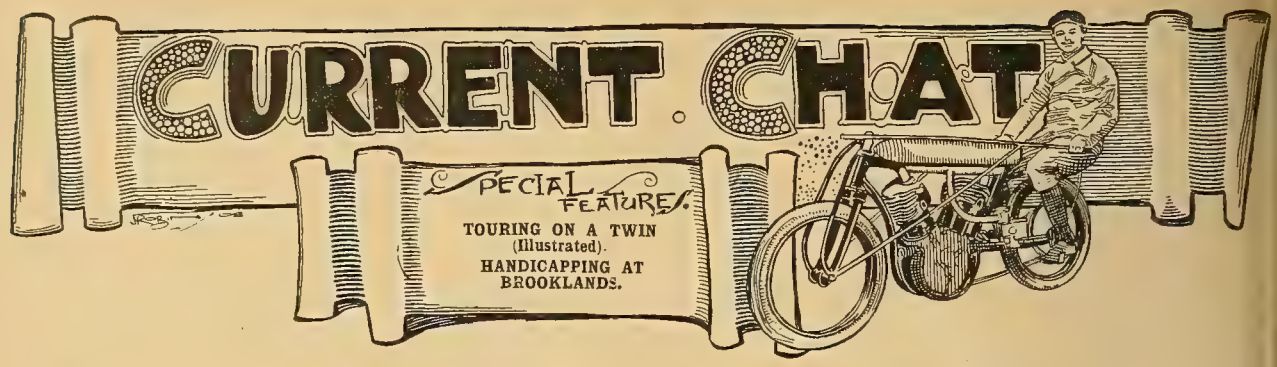
Either one of the inlet valves is not correctly timed, or one valve opens slightly more than the other, or the inlet pipes are not suitably arranged, causing a greater quantity of mixture to enter one cylinder than the other. If you can give us a rough sketch of the arrangement of your carburetter, perhaps we may help you. Your engine is fitted with adjustable tappets, so that you can easily alter the openings. It is possible that the carburetter is not properly adjusted. The leakage past the inlet valves can be cured by carefully grinding in the valves and fitting new copper and asbestos washers under the securing nuts.

Accumulator Acid.

(1.) Must one empty solution from accumulator when E.M.F. falls below 4 volts and refill with fresh acid before recharging, or will the old solution still serve, provided it is over top of the plates? (2.) If it is not necessary to fill with fresh acid each time cell is discharged, how often should fresh acid be put in? (3.) Can one determine proper strength of solution for refilling accumulator without using an hydrometer? Can one not measure out a certain bulk of acid, and add to it a certain bulk of water? If so, what is the proper proportion of acid (commercial sulphuric) to water, bulk for bulk, to make a solution of 1.20 specific gravity?—G.H. King.

(1 and 2.) There is no need to fill the accumulators with fresh acid (electrolyte) every time. It is, however, important to keep the level of the liquid about ¼in. above the plates and to keep its specific gravity at 1.20. (3.) This can be determined by using a hydrometer, and by adding acid when required. The proportion of acid to water is 1 to 5. Use distilled water and pure brimstone sulphuric acid, not what is known as "commercial" acid.

First Brooklands Open Motor Cycle Race on Easter Monday. Preparing for the start.



Next Week's Issue.

Next Wednesday's issue of *The Motor Cycle* will be a special Spring number, full of special articles and illustrations of absorbing interest. Order a copy now to prevent disappointment.

First Motor Cycle Race at Brooklands

We learn that the first, second, and third machines in the first open motor cycle race ever contested at Brooklands, during the Easter meeting, were fitted with Dunlop tyres.

Motor Cycles Exempted.

It is proposed to tax motor cars in America according to weight, five dollars per year being the minimum fee. As in the past, there is a clause exempting motor cycles from this new bill.

Another Race at Brooklands.

The first Brooklands motor cycle race at Easter was more in the nature of an experiment. It is only natural that riders of small single-cylinder machines will refuse to be pitted against riders of 7-9 h.p. twins on equal terms, and we note with pleasure that the next race, fixed for Saturday, May 9th, will be a handicap.

Particulars of the Race.

Although the conditions for the second open race have not yet been issued, the following particulars are available: The Motor Cycle Handicap Plate of 25 sovs.—The entrant of the winner to receive 15 sovs., the entrant of the second 7 sovs., and the entrant of the third 3 sovs. Entries close on May 1st, fee 10s. 6d. p.p. Twenty-five entries, or the race may be void at the option of the executive.

Another Police Trap.

Between Chichester and Arundel, about three miles from the first-named town, there is a police trap in operation, writes a Gloucester reader.

Associateship Popular.

The number of R.A.C. associates elected up to the present is 225, and there is a lengthy list of candidates for the next election. The Associates Department at 112, Piccadilly, is now in constant use.

The A.C.U. Annual Hill Climb.

In the event of a suitable venue being found in enclosed grounds on which to hold the annual A.C.U. hill-climb, classes will be arranged to suit all types of touring machines. The A.C.U. secretary will be pleased to hear from any member who can suggest a likely hill situated in private grounds. The event is fixed for Saturday, May 16th.

Motor Cycling Club.

On Saturday next, May 2nd, at 3 p.m., the members' hill-climbing competition for motor cycles and cars will be held at Sharpenhoe Hill, near Luton. Entries closed on Monday last to the Trials hon. sec., W. H. Wells, 15, Wilson Street, E.C. Three classes for motor cycles will be included. 1, Single-cylinder bicycles; 2, multi-cylinder bicycles; 3, passenger motor cycles. The formula to decide the order of merit will be $\frac{T \times C}{W}$, *i.e.*, time multiplied by cubic capacity in centimetres, divided by the weight. The awards in each class are—first, gold medal; second, silver medal; third, bronze medal.

London Statistics.

From December 1st, 1907, to 29th February, 1908, applications for the registration of 250 motor cycles were dealt with by the London County Council, bringing the total of these vehicles up to 8,141. The number of licenses to drive cars and motor cycles issued was 5,801.

Motor Cycle Union of Ireland (Ulster Centre).

The following competitions have been arranged: June 1st, reliability run arranged by the chairman, for which he will give prizes; June 27th, inter-centre contest for Triumph Cup (provisional); July 14th and 15th, Murat Trophy contest of 400 miles (open); July 25th, hill-climb at Ballybannon.

A Peculiar Specification.

Curious blunders are frequently made in advertisements owing to indistinct writing, but the two following from the *Bradford Observer*, sent us by a local reader, are really funny: Motor tri-cycle, 2¾ h.p. Humber engine and a *cooler*; front basket, and fitted with *Fielding and Moode's* patent clutch. Motor cycle, 2¼ h.p.; fitted with *new and break* coil.

The First Race at the Stadium.

On Monday week the first motor-cycle race at the new Stadium at Shepherd's Bush will be held, when the opening ceremony takes place. The Finchley Harriers are running a meeting there, and included in the programme will be a five miles motor-cycle handicap, open to genuine touring machines not exceeding 90 by 90 mm. with a 4 to 1 gear. Further particulars and entry forms can be obtained of Mr. C. R. Staine, 2 Broomhouse Road, Hurlingham, S.W.

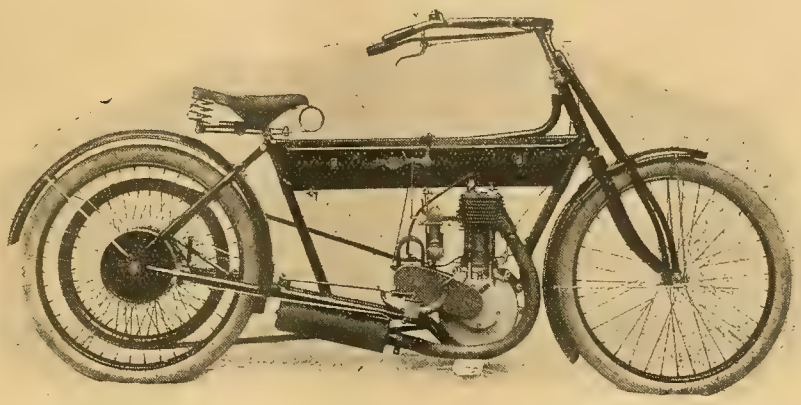
A representative meet of Essex Motor Club members on the occasion of the 1908 opening run.

MOTOR CYCLE TOURING

"THE CAR ON TWO WHEELS."

"One requires a two-speed gear that is reliable and would stand 10,000 miles without spending money on repairing; a good clutch that would enable one to start again on any hill that one may stop on to admire the scenery."

Extract from Mr. A. Candler's lecture before the Auto Cycle Union, April 10th., 1908.



ROC 4 h.p. new military model, ball-bearing engine, clutch-speed-gear, **48 gns.**
ROC conversion Set to convert any make of machine, **10 gns.**

These essentials are part of the ROC patented clutch and speed gear system with the added advantage of easy hand starting from live axle. No other machine incorporates these same advantages. Avoid imitations. The ROC patents cover the live axle, hand starting metal to metal clutch, and speed gears in combination herewith. The ROC by its low riding position and car-like conveniences is aptly termed "the car on two wheels."

A. W. WALL, LTD., Roc Motor Cycle Works, BIRMINGHAM.

London Agents: THE SERVICE CO., 292, High Holborn, W.C.

A BOOKLET TO INTEREST EVERY MOTOR CYCLIST IS SENT ON APPLICATION TO O. & W. ORMEROD, Ltd., Dept. B, ROCHDALE.

LONDON: W. B. BROOKE, 318, KING STREET, HAMMER-SMITH, W.

THE BELT THAT GRIPS.

The Watawata has a tenacity of grip to which other motor cycle belts are strangers.

That means power economy.

The Watawata is constructed solely of leather, and on scientific principles.

That means durability.

The Watawata is made in such a way as to render stretching or giving almost impossible.

That means a saving in trouble.

The Watawata is potent in the prevention of power wastage, so that the force of your engine is always rightly and fully directed.

That's why every motor cyclist can achieve better results with the Watawata, and why every reader of these words should test it.

Watawata

10,000 miles without a puncture!

41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

THE PALMER TYRE, LTD., 119, SHAFTESBURY AVENUE, W.C. Nov. 1st, 1907

Gentlemen,—I have pleasure in forwarding you herewith a 2¼in. Palmer Cord Motor Cycle Cover and Tube which has now done nearly 10,000 miles, and as you will see, is as good as ever.

I fitted it to the front wheel of my motor cycle in May, 1906, and took it off to-day to see what it was like inside.

It has only once been touched with the pump since fitted, and has never been punctured.

It has carried me safely through many important competitions, including A.C.C. Land's End to John-o'-Groat's Trial, 1906; London to Plymouth; and six days' trial, 1907; M.C.C. London to Edinburgh, 1907, and also several long tours.

The ribs are not worn much, and both cover and tube look like being good enough for next season.

Yours faithfully, H. GILLARD COVE.

The Longevity of Palmer Motor Cycle Tyres

becomes more than a mere statement in face of the above experience; it is a fact!

Write for our Manual, gratis and post free.

THE PALMER TYRE, LTD.,

Shaftesbury Avenue, London, W.C.

All Motor Cyclists should join the

AUTO-CYCLE UNION

And secure the following advantages:

1. Admission to Papers and Discussions on subjects of interest to motor cyclists.
2. Legal assistance.
3. Free registration for Open Competitions.
4. Special Touring facilities and Customs advantages on the Continent.
5. Free entry of members' motor bicycles into France, Holland, Belgium, Switzerland.
6. Information and assistance in planning Tours.
7. Information and assistance as to Customs formalities and duties, etc.
8. Reduced entrance fees in Races and Trials.
9. A copy, post free, of the Automobile Handbook.
10. Information as to best motor storage, repairers, and supplies of fuel.
11. A copy, post free, weekly of the Royal Automobile Club Journal.
12. Information and advice generally on motor cycling matters.
13. The right to exhibit the badge of the Auto-Cycle Union, and the special privileges attached thereto.
14. Full Associateship of the Royal Automobile Club.
15. Use of Club Rooms at 112, Piccadilly, London, W.

ENTRANCE FEE, 5s. ANNUAL SUBSCRIPTION: Town Members, £1 1s.; Country Members, 10s. 6d.

.....

To the SECRETARY, AUTO-CYCLE UNION,
18, DOWN STREET, PICCADILLY, W.

I desire to become a Member of the AUTO-CYCLE UNION, *and shall be glad if you will place my name before the Committee at its next meeting. Enclosed please find my Entrance Fee and Subscription of .....*

Signature .....

Address .....

Club ..... *Profession* .....

If connected with the Trade or not .....

IN THE FIRST MOTOR CYCLE RACE AT BROOKLANDS, ON EASTER MONDAY,

PEUGEOT ENGINES

ONCE MORE proved their

SUPERIORITY

OVER ALL OTHERS.

THE FASTEST FOR RACING.
THE BEST FOR TOURING
WITH OR WITHOUT A SIDECAR.

Ask your cycle maker to fit one to your present mount.

INSIST ON A "PEUGEOT." DO NOT BE PUT OFF WITH ONE 'JUST AS GOOD.'

J. TAYLOR,

318, Percy Road, BIRMINGHAM,

Sole Wholesale Agent.

Light-weight Trials at Nice.

The first event in the above competition, organised by the Nice A.C. and the T.C.F., took place on Saturday last and consisted of a reliability trial over a hilly and difficult course about twenty-five miles in length. In the multi-cylinder class F. Larippe (Moto Rêve) was first in 1h. 2m., J. Larippe (Moto Rêve) second 1h. 20m., and Guerrieri (Alcyon) third in 1h. 30m. In the single-cylinder class there were ten entries, the winner being Anken (K.D.), 1h. 8m. 28s.; 2, Borel (K.D.), 1h. 12m. 16s.; 3, F. Ellena (Alcyon), 1h. 22m. On Sunday the flying kilometre race was to have been held on the Promenade des Anglais, and on Monday the hill-climbing competition on La Turbie (pedalling gear barred).

The Winning Machine at Brooklands.

Several readers have written asking for the name of the maker of the winning N.L.G. motor cycle at Brooklands Track on Easter Monday. Doubtless numerous other readers who have not written have a desire for the same information. The owner and maker of the machine is Mr. A. G. Forster, North London Garage, 15, Corsica Street, Highbury, N., who with his brother is proprietor of a motor garage in the north of London. The letters N.L.G. signify North London Garage. The Messrs. Forster have for years taken an interest in motor cycling, but the winning machine at Brooklands is the first and only one yet made by them. Mr. Cook's success on this experimental machine should give sufficient encouragement to Messrs. Forster to exploit the N.L.G. still further.

Land's to John-o'-Groat's Records.

In view of possible attempts to create a new End-to-end motor cycle record this year, it is interesting to note that the existing records over this classical route are as follows: Motor car, 42h. 5m.; motor cycle, 48h. 36m.; push cycle, 3 days 8h. 4m.; walking, 17 days 12h. With the exception of the car record all were officially timed.

The M.C.C. London-Edinburgh Run.

This annual event is the most important of the Whitsuntide motor cycling fixtures, and will doubtless attract as large and representative an entry as in the past. Both motor cyclists and car drivers will take part, and a good deal of interest will be taken in the performances of one or two motor bicycles with sidecars attached, which we understand will start on this twenty-four hours' run. We wish the drivers every success, and there is no reason why they should not accomplish the journey within the schedule time, provided the driver and passenger are of the right sort, *i.e.*, in possession of the requisite stamina and persistence to carry out long-distance runs. Motor cyclists should not attempt the journey on anything but new tyres, and for the night journey two powerful lamps should be carried.

Handicapping at Brooklands.

Since the early portion of this issue went to press we learn from Mr. F. Straight, the secretary of the A.C.U., that the handicapping for the motor cycle races at Brooklands has been entrusted to him. We feel sure that the allotting of starts could not have been left in more able hands, nevertheless, we should like to see the handicap we suggest tried, as we feel sure it would provide an exciting contest.

Distinguishing Numbers in the Brooklands Race.

We understand from certain officials of the A.C.U. that considerable trouble has been given by competitors who took part in the first Brooklands Motor Cycle Race, owing to the fact that great difficulty was experienced in getting back the distinguishing numbers which were lent to them on the occasion of the race. The competitors had to pay nothing for these numbers, but in future no entrant will be allowed to compete unless he deposits 2s. 6d. with the secretary, which will not be returned to him unless the numbers are given back complete.

FUTURE EVENTS.

April 29—A.C.U. Quarterly Trial.
May 2—M.C.C. Members' Hill-climb, at Sharpenhoe, near Luton.
" 6—"The Motor Cycle" Special Spring Number
" 9—Brooklands Races. Motor Cycle Handicap Plate.
" 11—Finchley Harriers First Motor Cycle Race at the Stadium.
" 12-18—Auto Cycle Club of France Reliability Trials.
" 16—A.C.U. Annual Hill-climb.
" 16—Essex M.C. Open Hill-climb.
June 5-8—M.C.C. LONDON-EDINBURGH RUN and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 6 and 8—Brooklands A.R.C. Whitsun Meeting.
" 27—M.C.C. Inter-team Trials for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., and Birmingham M.C.C.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
" 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.
" 8—Essex M.C. Open Race Meeting at the Stadium, Shepherd's Bush, W.

The Special Spring Number on May 6th.

The principal contents of the special Spring number to be published next Wednesday are: Photography and Motor Cycling (Illustrated). By AN 409. Our Historic Highways (Illustrated). By Reginald Wellbye. Motor Cycling for Health: Being the Experiences of Medical Men who are also Motor Cyclists. How the New Mount Scored (Storyette). The Motor Cycle and the Variety Stage (Illustrated). By Percy Delevine. The Joys of an Expert. By S. W. O. Len Head, Esq. The Motor Cycle for Business (Illustrated). By "Bagman." Extract from *The Motor Cycle* of 2008 (Illustrated). The Troubles of a Novice. By S. B. S. Contact Breakers for Twin-cylinder Engines. By Ixion. Motor Cycling for Ladies (Illustrated). The Motor Cyclist's Ideal. Result of our plebiscite. Illustrated description of the A.C.U. Quarterly Trials. Brooklands: An Impression of Speed. Full page art supplement in colours. Drawn by E. H. Thomas.

Essex Open Hill Climb Postponed.

We are informed that the Essex Motor Club Hill-climb has been postponed from the 9th until 15th May, so that it will not clash with the Brooklands motor cycle races, which will be held on the 9th.

The End-to-end Record.

Mr. Harold Williamson informs us that he thinks with good luck the End-to-end record figures should come down from 48 to 36 hours. If it does not come below this figure during the year he has expressed his intention of having another try himself on his Rex.

Auto Cycle Club of France Reliability Trial.

This important event (May 12th to 18th) has received a total entry of forty-four. Bucquet, well-known to our readers as a very successful rider, will again bestride a light Griffon. As he was the winner of the last Paris-Ostend-Paris Motor Cycle Trial, his entry has caused much interest. Voiturettes will compete with the motor cycles and tricars, but in a separate category.

Kentish Police Active.

We are advised that all through Kent the police are waging an active campaign against motorists. The most notorious trap commences at Rainham, four miles beyond Chatham, on the main London-Dover Road, and extends to Sittingbourne, six miles beyond Rainham. Timing operations are conducted at Rainham, and again at Sittingbourne, and *vice versa*. Traps also exist on the roads from Maidstone to Seven Oaks, and in the surrounding district.

The Herts County A.C. Open Hill Climb for Motor Cycles.

We heard at the last moment that the open hill-climb fixed for Saturday last was postponed. As we understand that the A.C.U. Quarterly Trials were relegated to Wednesday, April 29th, so that they did not clash with the open hill-climb, it would appear that some explanation of the postponement should be forthcoming.

The M.C.C. Team Competition.

The above event, which is a contest for *The Motor Cycle* Fifty Guinea Challenge Cup over 100 miles, between teams of riders from various clubs, will take place on June 27th. The course selected is near Daventry, Northants. Will club secretaries, who have not received particulars of this event, write to the Trials hon. sec., Mr. J. Van Hooydonk, Spring Villa, North Finchley, N, for a copy of the rules and an entry form. The rules were published in *The Motor Cycle* of April 15th, page 303. We shall be glad to hear of club teams intending to compete for inclusion in our list of Future Events. Four clubs have already decided to send a team.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 315.*)

LIGHTING FRONT NUMBER.

201. On a motor bicycle the aim should be to avoid casting disconcerting shadows. This is only achieved by setting lamp well back against steering head, and setting number-plate right forward on front edge of mudguard.

On a tricar exceeding 3 cwt. in weight a tail lamp and rear illumination are required by the L.G.B.'s doubtful interpretation of a carelessly framed law.

On a light tricar, not exceeding 3 cwt., set the side lamps well back, and put a number on each side well in advance of the lamps, preferably painting it on the fore body. It is a mistake to carry a plate projecting from the headlight—it is sure to get damaged.

LIGHTWEIGHT MOTOR BICYCLES.

202. Much ingenuity and capital have been expended in the effort to produce motor bicycles weighing 70 lbs. or so, and for riders not exceeding ten stones, and in favourable districts, they provide handy little mounts for those who do not yearn for speed, and are willing to give pedal assistance when it is required.

For general touring purposes I should recommend a more powerful mount, and my advice is confirmed by the fact that hundreds of riders who know how to get the last ounce out of a good 3½ h.p. 150 lb. machine, ardently long for a two-speed gear. The 1906 Land's End to John-o'-Groat's trial included bicycles ranging in power from 3 to 7 h.p., and only the two-speeded machines got through without being stopped on a hill. The modern lightweight machines of under 80 lbs. make very meritorious little runabouts, but certain facts are true of all present-day lightweight low power machines.

(1.) With a man not exceeding ten stones in the saddle they can climb ascents like Dashwood with pedal assistance.

(2.) Petrol and oil capacity. Luggage and tool kit must be sternly reduced to the lowest minimum, and a spring fork is quite as essential, if not more so, than on a heavier machine.

(3.) The gear is too high. It is commonly asserted that if 3½ h.p. is a suitable engine for a 150 lb. machine, 1¾ h.p. is ample for a 70 lb. cycle. This is true with the important proviso that the gear should also be proportionate. Under present conditions, if the engine pulley is small enough to afford such a gear, the belt will usually give trouble. Some such device for combining a low gear with a large engine pulley, as is employed on the 1¾ h.p. F.N., would be an improvement on all machines of this type.

MOTOR BICYCLE STANDS.

203. In selecting a motor bicycle stand take care that:

(a.) It is rigid when in use.

(b.) That it is attached to the chain-stays and not to the rear axle, otherwise it is useless when the wheel is removed.

(c.) That it has no small parts which are likely to jar off.

(d.) That it is easily and swiftly lowered and fastened up again. A spring catch is desirable, as butterfly nuts work loose.

MOUNTING A MOTOR BICYCLE.

204. A novice usually wonders whether he will ever be able to get on to his motor bicycle. It is best to practise mounting by pedal or footrest down a falling grade, with the belt removed. The art is soon acquired, and becomes perfectly automatic. I invariably mount clean off the ground, which I consider much safer than feeling for a pedal or footrest. If the rider is nervous he may momentarily raise the valve or switch off while swinging himself into the saddle, but unless he learns to jump on cleanly with the engine running, he will only be able to start on the flat or downhill. Starting by sitting in the saddle and pedalling is the slowest and most tiring method of all, and no rider should rest content until he has mastered either the clean jump or the pedal hop. With a variable gear there is no need for any exertion at all. Simply inject paraffin to free the rings, sit athwart the machine, engage low gear, set levers, raise valve, give two smart pushes against the ground, one with each foot, drop valve, and engine should start.

MUDGUARDS FOR MOTOR BICYCLES.

205. Mudguards should be four inches wide, stoutly stayed. The front guard should have a large flap to shield engine and magneto from mud. The rear guard should be hinged abaft of the rear forks, and its stays should be clipped detachably near the hub.

MUDGUARDS FOR TRICARS.

206. All tricars should have inner shields to the front wings, since the radiators, steering gear, and fore brakes will otherwise rapidly be choked up with mud and become particularly inoperative. Patent leather shields are easily made and kept clean. It is a mistake to attach hooters and lamp brackets to the guards—they need all the staying makers provide, without being called upon to carry additional weight.

NAILCATCHERS.

207. Many punctures may be averted by the use of nailcatchers, since a nail seldom really penetrates the cover and tube at the first revolution of the wheel after it has been picked up. Nailcatchers are, therefore, well worth fitting. Chains may be bought which trail across the tyre, and are carried by clips on the forks. Some stands have hollow horseshoes of rubber for this purpose. A home-made set may be cheaply rigged by anchoring stout steel wire to two little clips made to fit the back stays. They should be so set that the wire clears the tyre by a fraction of an inch.

Competitors in the first Brooklands motor cycle race parading to the start.

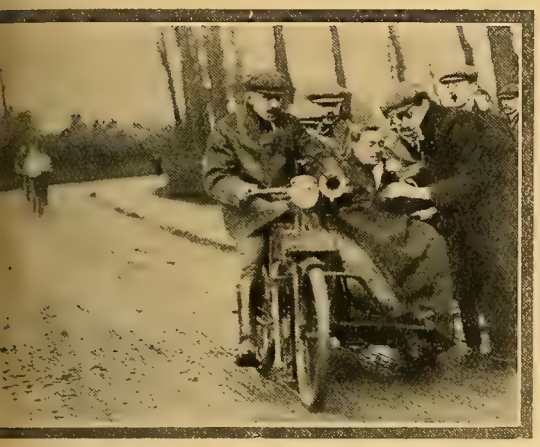
ON TOUR.

208. When the big car sweeps derisively by you what time you sit and tinker on the shadeless road, remember your humiliation is not to be ascribed to the fact that the car is more reliable than your bicycle, but to the fact that the chauffeur gave it a clean up and look over last night, what time you were idly buying picture postcards. Make it a rule when on tour to glance over the machine every evening, and specially see that the batteries are charged, the belt and fastener in good condition, and the tyres free from cuts and holes.

"THE AUTOCAR" contains each week much interesting information which, although written in regard to motor cars, is also applicable to tricars and motor bicycles. It is published weekly, price 3d., and can be obtained from all newsagents and bookstalls.

Auto Cycle Union Quarterly Trial.

WENTY-FIVE entries were received up to Friday last for the April Quarterly Trial, which takes place to-day (Wednesday), starting from the Chequers Hotel, Uxbridge, at 9 a.m. The will be the same as in the previous trials, viz., Uxbridge, Beaconsfield, High Wycombe, Dash-



e Marathon Trial Race was held last Saturday in connection with the pic Games. Our picture shows one of the runners (Appleby) who ped out, being taken up by a motor cyclist Samaritan with a side-car.

l Hill, Wheatley, Islip, to Banbury, returning Bicester, Aylesbury, Berkhampstead, Chesham, rsham, and Beaconsfield to Uxbridge. Competing ines will be timed both on Dashwood Hill and rsham Hill. Motor cyclists along the route are ed to make a note of any incidents they see during rial, particularly stoppages, and to report same to ecretary.

Rider and machine.	No. of cylinders.	Bore. mm.	Stroke. mm.
D. Steeves (3¾ h.p. N.S.U.) ...	1	82	× 86
F. W. Newsome (3½ h.p. Triumph) ...	1	84	× 86
J. S. Shaw (5½ h.p. Phänomen) ...	2	74	× 84
F. W. Barnes (3½ h.p. Zenette) ...	1	80	× 80
M. Geiger (6 h.p. N.S.U.) ...	2	75	× 90
H. Newey (3½ h.p. L.M.C.) ...	1	81	× 88
H. Fuller (3½ h.p. Diamond) ...	2	65	× 72
R. Samson (3½ h.p. L.M.C.) ...	1	81	× 88
Miss Muriel Hind (5 h.p. Rex)	2	76	× 80
G. Lee Evans (3½ h.p. Rex) ...	1	82	× 90
W. G. McMinnies (3½ h.p. Triumph)	1	84	× 86
E. J. Browning (4 h.p. N.S.U.)	2	64	× 85
W. A. Tyndale (3½ h.p. N.S.U.)	1	80	× 80
Claude Taylor (3¾ h.p. N.S.U.) ...	1	82	× 86
R. H. Butler (6 h.p. N.S.U.) ...	2	75	× 90
G. L. Fletcher (2 h.p. Moto-Rêve) ...	2	50	× 70
R. J. Bell (2 h.p. Moto-Rêve)	2	50	× 70
J. Robinson (1¼ h.p. Motosacoche)	1	62	× 70
W. Smith (1¼ h.p. Motosacoche) ...	1	62	× 70
F. Applebee (5 h.p. Rex) ...	2	76	× 80
F. W. Applebee (5 h.p. Rex)	2	76	× 80
——— (2 h.p. Moto-Rêve) ...	2	50	× 70
J. Beck (2½ h.p. Fairy) ...	2	57	× 54
G. Connor (2½ h.p. Fairy)	2	57	× 54
R. D. Yeardsley (2½ h.p. Fairy) ...	2	57	× 54

One of the most complete catalogues of motor cycle accessories is that issued by the Service Co., Ltd., 292, High Holborn, W.C. This list deals only with motor cycle fitments, and every reader should write for a copy.

The number of hon. correspondents of the Motor Union is to be increased, and members are asked to kindly send in the names of motorists who will undertake the duties in various districts. A list of the duties can be obtained from the secretary, 1, Albemarle Street, London, W.

CLUB NEWS.

Waterford and District M.C.C

a meeting held last week, a motor cycle club was formed Vaterford and district. A number of motor cyclists took e matter with considerable enthusiasm, and the member- ilready numbers sixteen. Mr. W. J. Cordner was elected lent; Mr. W. E. Bowers, Ferrybank, hon. sec.; and M. J. Murphy, hon. treasurer.

Sutton Coldfield A.C.

ing to the very bad weather the reliability trial, which o have been run off last Saturday, was postponed till er day; the date to be arranged at the next committee ng. The run next Saturday is to Ashby-de-la-Zouch, from headquarters 2.30 p.m.; and on Sunday, May 3rd, y run to Matlock, start from headquarters 11 a.m.

The Worcestershire M.C.C.

ing to the unsettled weather the reliability trial organ- by the above club was not as successful as it was hoped Out of thirteen entries eight faced the elements. The e was divided into four sections of twenty-six miles each, sgrove to Bromyard, Bromyard to Kington, and return same road. The trial resulted as follows :

W. Ward (3½ h.p. Triumph), non-stop, 1,000 marks; 2, arby (3⅜ h.p. Rex), one puncture, 975 marks; 3, E. ss (5-6 h.p. Rex), one puncture, 950 marks; 4, H. C. ring (4 h.p. Excelsior), inlet valve stuck three minutes, arks; and L. C. Wakeman (3½ h.p. Ariel), broken ex- lifter five minutes, 900 marks; 5, L. Pickering (5-6 h.p. contact breaker trouble, disqualified; 6, H. B. Denby p. Minerva), burst tube, disqualified; J. G. Parting- ½ h.p. Minerva), burst tube, retired.

Southern M.C.

The opening run held on Saturday last was somewhat spoilt on account of the arctic weather. Nevertheless, several enthusiastic members sat down to tea, in company with a large fire. For the first time in the annals of the club it was impossible to take the usual club photograph.

There was a large muster at the Hut, Wisley, on Sunday, the 26th.

The speed-judging contest for club members only will be held on Saturday, May 9th. Members are requested to be at the Chequers, Horley, punctually at four o'clock. No entrance fee.

Birmingham M.C.C.

A hill-climbing competition will be held on Saturday, the 2nd prox., at Rose Hill, Rednal, and five classes are included, viz.: Class A, for motor bicycles with engines not exceeding 76 by 76 mm. or equivalent; Class B, for motor bicycles with single cylinders of any capacity; Class C, for motor bicycles with more than one cylinder; Class D, for passenger motor cycles (tricars, quads, motor bicycles with trailer, etc.); and Class E, for motor cars up to 20 h.p., with full complement of passengers. Intending competitors meet at Longbridge, Northfield, at 2.30 p.m. The first competitor will be started at 3 p.m. prompt. Competitors will ride from Longbridge to the foot of Rose Hill (untimed). The distance from Longbridge to the foot of Rose Hill is one and a quarter miles (level ground), and must be covered in not less than three minutes and not more than six minutes. At the foot of Rose Hill the competitor must dismount and bring his engine to a standstill, then at a signal from the starter he must restart immediately the starter gives his signal. Electrical timing will be used.

Club News.—

Newcastle and District M.C.C.

Owing to the heavy snowfall, a small entry was experienced for the slow hill-climbing competition organised by the above club on Saturday last at Benton Bank, Newcastle-on-Tyne.

Mr. R. H. Head, chairman of the committee of the Motor Cycling Club.

Single gear class—1, *S. W. Carty (3¾ h.p. N.S.U.), time 1m. 8⅘s.; 2, B. Bradford (6 h.p. Jap), 59⅘s.; 3, D. Mallett (3¾ h.p. N.S.U.) Also ran: L. Rosenvinge (3¾ h.p. N.S.U.), B. Dodds (4 h.p. N.S.U.), F. Mallett (6 h.p. N.S.U.), S. Hudson (3½ h.p. Hobart). *S. W. Carty was disqualified owing to his gear being less than 6 to 1, and first award was given to B. Bradford.

Variable gear class—1, R. F. Speir (3½ h.p. Triumph, Roc two-speed gear), time 2m. 34s.; 2, L. Rosenvinge (3¾ h.p. N.S.U., two-speed gear), 1m. 55s.; 3, B. Dodds (3¾ h.p. N.S.U., two-speed gear). Also ran—D. Mallett (3¾ h.p. N.S.U., two-speed gear); S. W. Carty (3¾ h.p. N.S.U., two-speed gear).

Officials: Timekeeper, Mr. L. Austin; judge and starter, Mr. J. N. Grey; marshals, Mr. G. L. Bates, J. W. Dickinson, and E. B. Nicholson.

Owing to the courtesy of the Chief Constable, Dr. Wright, the course was splendidly controlled by members of the Newcastle City Constabulary.

North West London M.C.C.

The Easter tour proved most enjoyable, a start being made from Cricklewood at six o'clock on Friday morning, the 17th inst. The night's destination was Torquay, which was reached after a most enjoyable run amidst glorious scenery and perfect weather. The elements were again kind on the Saturday, when the party, after inspecting the various items of interest in the town, proceeded to Minehead *viâ* Dawlish and Teignmouth. The latter part of this route took the tourists through some of the finest scenery in Somerset, the red-surfaced road running through magnificently wooded country, and it was with great reluctance they left it behind in order to reach Minehead before dark.

Sunday morning was spent in a leisurely fashion with the exception of one enthusiast, who thought it advisable to scrape his cylinder in view of the fact that the chosen route lay through Porlock and up the famous hill. A start was made after lunch, and on arrival at the hi those who possessed variable pulleys were at once busy, several clean ascents were made. Tea was taken a charmingly situated hotel, and then a very difficult clin to Lynton was negotiated, the hill being almost unrid owing to the exceedingly loose surface. After a few batic performances, however, all arrived safely at the and proceeded to Ilfracombe, where the night was s

On Monday morning most of the party made a star home. Those remaining after a constitutional round Capstone travelled to Exeter, where a most enjoyable was spent in the cathedral. Taunton was the ni destination.

Tuesday morning, after the museum at Taunton had inspected (it is well worth a visit), the party left for and after a visit to the Roman baths a brisk run to L brought a most enjoyable tour to a close.

North Islington Conservative and Unionist M.C.

With very unseasonable weather prospects, membe this club left their London headquarters, 623, Hol Road, shortly after eight o'clock on Easter Sunday mo bound for Clacton-on-Sea. When the club had through Romford, and had got well on the road, its me suddenly had to fly for shelter from a terrible hailsto Brook Street Hill. All arrived at Clacton-on-Sea abou o'clock, and some put up at the Castle Hotel. There no improvement in Monday's weather, it was regr decided to return to London at once, and again snow an had to be encountered. At Kelvedon lunch was take an enjoyable non-stop run home was made.

South Eastern Auto Cycle Association.

At a committee meeting at headquarters several me were elected. A hill-climbing competition in the summe be held on an entirely new venue.

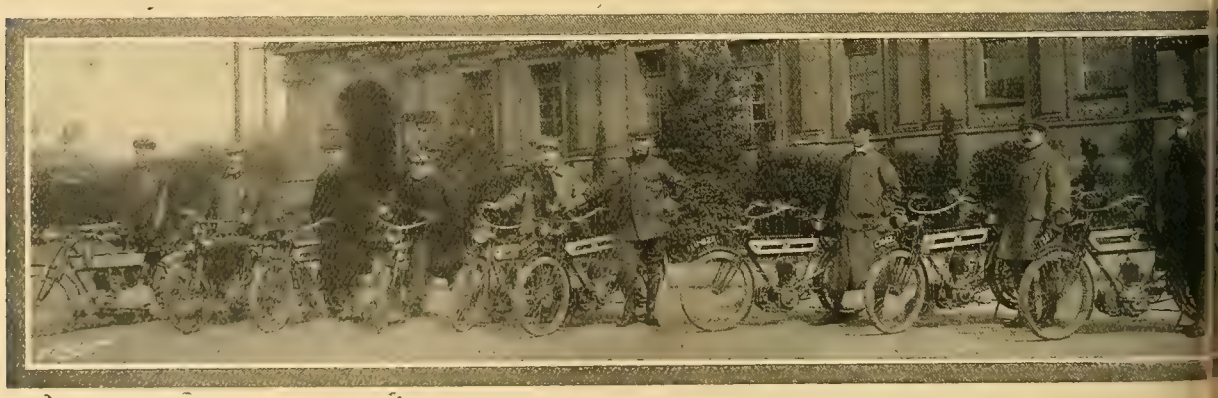
Mr. N. Willis Coles, of the Ravensbourne Motor En ing Works, Southend, has kindly offered to garage me machines free of charge.

The annual subscription to the S.E. A.A. is 10s. 6d the advantages include affiliation to the A.C.U., r entry fees in the various S.E. A.A. competitions, and touring facilities. Application forms for membership obtained from the hon. sec., H. B. Renner, Kidbrool Road, Blackheath, S.E.

Essex M.C.

In consequence of there being a race meeting at Broc on Saturday, May 9th, the date originally fixed for th hill-climb, the latter has been postponed until the fol Saturday, the 16th prox. Entries will therefore not clo the 9th prox. All entry forms and all other matter r to the hill-climb should be addressed to the trials hon. tary, Mr. E. J. Bass, Crown Hotel, Ongar, Essex.

The undermentioned are the fixtures for the month o May 3rd.—Run to Bedford.
,, 9th.—Run to Bishop's Stortford.
,, 10th.—Run to Cambridge.
,, 16th.—Open hill-climb.
,, 17th.—Speed judging contest abridged.
,, 23rd.—Inter-club competition with the West Esse
,, 24th.—Run to Dedham.
,, 30th.—Run to Stanstead Abbots.
,, 31st.—Non-stop run to Clacton-on-Sea.



The York County M.C.C. contingent ready to start for the Richmond meet on Good Friday last.

Club News.—

Crewe and District M.C.

The opening run for 1908 is fixed for Saturday next, the 2nd prox., and all members are requested to attend. The start is from the Earl of Crewe Hotel, Nantwich Road, Crewe, at 3 p.m., and the route is *viâ* Whitchurch and Wrexham. Dinner 6.30 p.m. at the Blossoms Hotel, Chester. Intending members of this club should communicate with the hon. sec., Mr. A. M. Tatham, 39, Derrington Avenue, Crewe.

Perth and District M.C.C.

The club had a very enjoyable all day run on Monday, 20th inst. Starting from Perth the route was by Pitlochry and Struan to Kinloch Rannoch, where lunch was served in the Loch Rannoch Hotel. The climb from Calvine up Trinafour was fairly stiff, but the resulting view was ample compensation. After lunch the route, which includes some very severe gradients, was over the shoulder of Schichallion, from which a splendid panorama can be seen, then across the Moor of Rannoch to Coshieville, and on to Fearnan on Loch Tay. The run to the head of the Loch at Killin, and on to the top of Glen Ogle, was rather spoilt by the loose condition of the road surface, but the long coast to Lochearnhead was a fine experience. Tea was had at St. Fillans, and the run completed by Comrie and Creiff.

Birmingham M.C.C.

On Saturday next the annual club hill-climbing competition will be held. Members will have received full particulars of this event by circular.

Coventry M.C.

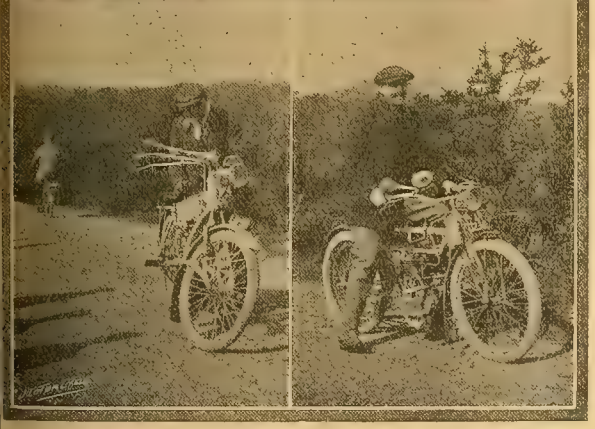
The secretary of the Coventry M.C. informs us that he has received some kind offers of assistance in connection with the Coventry to Holyhead run, which will take place on May 30th, but he is still open for a few more. Will motorists in Shrewsbury, Llangollen, Bangor, Menai, and Holyhead, who would be willing to assist as checkers or marshals, kindly communicate with Mr. E. W. Walford, 18, Hertford Street, Coventry?

North West London M.C.C.

In addition to the twelve hours reliability trial from London to Coventry and back on May 23rd, it has been decided to hold the following trials: June 13th, speed-judging competition; July 4th, hill-climb; July 25th, petrol consumption competition; September 12th, distance-judging competition; Sept. 26th, petrol quantity judging competition. Details of these trials will be issued later, but it is hoped that members of the club will note these dates in order that no other engagements may interfere with a full entry for each competition. Several new members were elected at the last committee meeting.

The Motor Cycling Club Easter Tour.

THE sixth annual Easter tour of the Motor Cycling Club was successfully carried through, Salisbury being fixed upon as a centre, and the captain of the club, Mr. E. B. Dickson, in charge. About five and twenty members and friends attended, the majority of the former riding down from London on Good Friday, and reaching the Red Lion Hotel in time for dinner. Salisbury had been selected so that members who could not get away for the whole of the time could easily reach headquarters, and this was found to be a satisfactory arrangement. On Saturday, the 18th inst., a circular tour in the New Forest was made,



Competitors in the impromptu hill-climb, Messrs. E. Gwynne and R. M. Brice.

and after lunch at the Compton Arms at Stoney Cross, an impromptu, but most successful, hill-climb was carried out, Chairman Robert Head acting as timekeeper, chief marshal, and general organiser. Many of the London stars of the motoring firmament competed, but the winner was found in Lieutenant Tremonger, a new member of the club, on a 3½ h.p. Triumph (1908). A call at the White Hart at Ringwood for tea, and thence back to Salisbury, completed a pleasant sixty to seventy miles outing.

A Run to Corfe Castle and Swanage.

On Sunday a run was made to Corfe Castle (lunch at Bankes Arms; very good, and very moderate in price), and thence *viâ* Swanage, Studland, and once more to Ringwood to tea. Some of the more impressionable members of the party were very much taken with the "attractions" to be found at Ringwood.

The Big Heart Stops Beating.

Not all were able to return to Salisbury, one of the most popular members being left at Studland, owing to a temporary failure of "his big heart," which failed to beat in its usual regular manner.

Easter Monday morning was the signal for a prompt exodus, most of the members rushing off for Brooklands, although a big business was done with the hotel garage vulcanising plant. A few of the party made a pleasant tour *viâ* Amesbury and the valley of the Avon to Marlborough, and enjoyed a view of quite the best scenery of a pleasant tour.

Some members of the Motor Cycling Club photographed at Stoney Cross.

As a motoring holiday this year's Easter tour compares favourably with its predecessors. The attendance was satisfactory, and the management excellent. The proprietor of the Red Lion catered excellently, and the charges were not to be found fault with. The weather was fine, but cold; the roads execrable, which accounted for the tyre troubles referred to.

LETTERS To The EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

An Easter Morning Ride.

[3272.]—I was interested in reading an article, viz., "An Easter Morning's Ride," last week, especially where it says, "And numerous moles, which can run very fast when they see the light of a motor cycle coming their way."

Mr. Ponting will pardon me when I say that the moles, around this part of the country at any rate, have no eyes.

SUBSCRIBER.

Low Petrol Consumption.

[3273.]—Letter No. 3245 from "E 123" is very interesting to me. I should very much like to know (a) gear, (b) stroke and bore of engine, and (c) rider's weight.

I once did sixty-six miles on exactly one quart of Pratt's, with a Clément-Garrard pattern 55 × 60 engine, gear 7½ to 1. My weight is 8 stones, and a good part of the way I was towing a friend on an ordinary bicycle.

H. GORDON TIDEY.

Unattached Riders.

[3274.]—In the same issue in which my previous letter [No. 3208] appeared I see you state that the A.C.U. has definitely decided not to enrol unattached riders except as private members at £1 1s. and 10s. 6d. each. As Mr. S. H. Fry so ably points out, if some motor cycling body will not cater for these people other bodies like the C.T.C. may.

Will the Motor Cycling Club not step into the breach and enrol associate members for an annual subscription of 5s., such members to be granted affiliation benefits only?

J. H. S.

[3275.]—I notice in your columns a discussion as to who shall cater for unattached motor cyclists. Might I point out that the Cyclists' Touring Club is, and has been doing so for a long time past? The paragraph you quote from the *Gazette*, signed by Major Rooke, does not refer to a new committee, as might perhaps be thought by non-members, but merely to the election of the motor cycle committee for the year. The Club's *Gazette* every month contains an article dealing with matters of interest to motor cyclists, who are entitled to exactly the same privileges—legal defence, hotel discounts, touring information, foreign Customs concessions, etc.—as are enjoyed by the push cyclist.

W. A. RUSSELL, Secretary C.T.C.

Two-speed Gear Trials.

[3276.]—Mr. Korber's pleading for a class devoted to passenger tourist machines in this year's hill-climbs will receive the approbation of all motor cyclists whose aim is real touring and not mere speed, and I am sure innumerable riders will endorse the wisdom of the suggestion.

For my part I am convinced that Messrs. A. W. Wall, Ltd., are not too bold in welcoming speed gear tests of the searching nature this firm have commendably pledged themselves to. The result would be far more interesting than performances designed to prove the point to which selected solo machines can be accelerated, geared, and tuned up for the mere craze of speed, yet wholly unsuitable for touring with passenger attachment over such routes as your correspondent has outlined. I am of opinion that a 4 h.p. single-cylinder engine with a pedal clutch and two-speed gear is ample, and the tests should preferably include starting from rest on the hill itself and not from a *départ lancé*.

I agree that Mr. Wall should preferably have these performances carried out under the auspices of the Auto Cycle Union. No doubt you, Mr. Editor, and the Auto Cycle Union could arrange to allow Mr. Wall an opportunity to make good his professions of the capability of his clutch and gear, and thus settle our minds on this important question.

G. C. MAILLARD.

Hill-climbing Suggestion.

[3277.]—Reading Mr. H. G. Bell's article in *The Motor Cycle* of April 15th, I was particularly struck with his remarks about uncomfortable and even dangerous speeds at which some of the powerful machines climbed the hill. Might I put forward the suggestion (for what it is worth) that a very interesting competition could be arranged on the following lines. The machine that climbs the hill nearest to a pace to be arranged, say, fifteen miles per hour, to be the winner; the machines to be standard geared. A climb up Sharpenhoe on these lines should be rather interesting.

U 560.

The Balancing of Petrol Engines.

[3278.]—In *The Motor Cycle* I read a letter from a Mr. Parry [3225] quoting one of Newton's laws and expressing surprise that I should suggest that the vibration complained of in a certain machine might very possibly be due to high compression rather than incorrect balancing of the revolving parts of the engine. I am aware that the internal forces of compression and explosion have nothing to do with the balancing of the revolving parts of an engine, but unless the flywheels are correctly proportioned these forces have a distinct effect on the vibration of the whole machine, particularly so on high-powered, high-geared, single-cylinder motor cycles. It is not necessary for me to dig up Newton nor even Aristotle to prove that increasing the compression of a given petrol engine results in a more uneven turning movement on the crankshaft, and greater variations in the angular velocity of the driving pulley, these variations or jerks or kicks being transmitted by the belt to the frame and rider, often causing him to complain of vibration.

J. T. CLARKE.

Endorsement of Licenses.

[3279.]—As one of your oldest and most constant readers might I encroach upon your valuable space to ask if any of your readers can explain the following, or if you know of a similar case?

In August of 1905 I was fined and my license endorsed. In 1906 this was again copied on to my license, on renewal; then in 1907 the authorities let me off with a clean sheet, while now this year they again fill in the endorsement and will give me no explanation. Each license in 1906-7-8 has been signed by the same registrar. Is such a proceeding as this legal?

Can anyone tell me if any motor cycle races have ever been held on this side of the border? And if so, where? Why could someone not organise a meeting here in Glasgow, where we have, to my knowledge, two excellent banked cycle tracks, namely, Hampden and Ibrox, where some excellent and perfectly safe racing might be indulged in with engines not exceeding, say, 76 mm. by 80 mm.?

GEO. GILMOUR, JUN.

[Motor cycle races were held in Glasgow on July 9th, 1904, at Celtic Park.—ED.]

The Price of Petrol Spirit.

[3280.]—Having regard to statements recently made in the press that there are large quantities of petrol spirit lying at American exporting centres, it seems somewhat inconsistent that the price of this useful commodity should keep up as it does. This is somewhat accounted for by the difficulty the importers have in dealing with the arrangements for the discharge of shipments of motor spirit, arrangements which appear to be in the hands of the Thames Conservancy, and which place the distributers in a difficult position, inasmuch as, while they have great facilities for unloading spirit at a much more convenient, and, consequently, less expensive place than at present permitted, they are debarred from doing so by the existing conditions of the Conservancy Board.

Motoring has become a national pastime, and whether it be the owner of a £1,000 car or the possessor of a motor cycle, the question of the cost of petrol is equally serious, and is a large factor to be considered in the development of motoring, whether as a pastime or an industry. This being so, surely some representations should be made to induce the authorities to re-arrange their conditions of unloading to meet the requirements of the importer, as it must be patent to all that by so doing the natural result would be a material reduction in the cost of petrol to the consumer.

FRED C. WIFFEN,
Hon. sec. Brighton Cyclist Club (Motor Section).

A Dissatisfied Owner of a Twin.

[3281.]—In reply to "A Dissatisfied Owner of a Twin," who states in *The Motor Cycle*, issue April 22nd, that after riding 4,000 miles he found everything in his engine in a wretched state of wear, I can only think that this state of things is entirely the fault of the rider. A properly constructed twin-cylinder engine, if handled with the same judgment necessary for the welfare of a single-cylinder engine, will wear equally as long. Personally, I have ridden a twin-cylinder engine over 10,000 miles without ever having to renew a single part, except valve cotters, and at the end of that distance there was not a loose bearing in the engine. I recently saw a 5 h.p. Vindec engine taken apart, which had been run considerably over 10,000 miles, and it was in practically as good condition as when new, though no new parts had ever been fitted. The majority of owners of motor cycles thoroughly believe they take the best care of their machines and regularly oil them, but I have known both single and twin-cylinder engines which have been practically racked to pieces before they had been run 100 miles, simply through carelessness on the part of the riders. If "Dissatisfied" would like some opinions of users of 7 h.p. twin-cylinder engines, I would be pleased to send him by number that I have received during the past two years.

W. H. WELLS.

Newcastle M.C. members assembled at Belsay, on the 17th inst., when a speed judging competition was held.

Belt v. Chain.

[3282.]—I little thought, when I was tempted to reply to one of your correspondents, who apparently had taken to heart the argument that "Ixion" and Mr. B. H. Davies had put forth that chain drive was essential for sidecar work, that the old question of belt and chain drive would be reopened. I am not by any means antagonistic to the chain drive, my principal reason in replying to your correspondent being that his letter could easily have been misinterpreted by readers desirous of fitting light passenger attachments and thinking they would only be investing in trouble, become disheartened, and finally refuse to entertain the idea, unless their purse would allow them to convert their cycles to chain drive as well. To my mind this seemed regrettable, especially as I look back and recall past memories of enjoyment obtained with a sidecar. In Mr. Davies's reply his arguments seem intended more for coachbuilt tricars, where naturally one would expect chain drive. Yet surely he does not place sidecars in the same class as 10 h.p. tricars—the one weighing under 4 cwts., the other anything over 3 cwts., and with water-cooled engine.

"Ixion" in his article asks why I do not enter the End-to-end run. Fortunately for my pocket, unfortunately for my pleasure, I am unable to leave business three weeks, otherwise I should be a starter, if not a finisher, so that I am obliged to enter competitions that do not clash with business to such an extent. I am aware that the London to Edinburgh run is over very easy roads, so much so that up to the present I believe no sidecar has got through, although four started last year, I being one of the failures. Again, whether hilly or flat, the distance is nearly half the total mileage of the End-to-end. Experience has taught me that it is when a belt gets excessively hot that it unduly stretches, and I admit, even in the Edinburgh run, I shall have one or more spare belts, and doubtless, whether necessary or not, use them both alternately, for precautionary measures alone, in the same way that a chain-drive competitor will have his chain spares.

Perhaps it would further interest "Ixion" and other readers to know that three years ago I was over a good part of the End-to-end course, driving a 3½ h.p. Minerva, single gear, belt drive, and sidecar. In fact, according to the officials, I was the first sidecarist to cross the Firth of Forth from Burntisland to Granton. My passenger on that occasion weighed thirteen stones. We left London *viâ* Oxford, through Gloucester and Herefordshire, up the West Coast, over Shap to Carlisle, getting beyond Killiecrankie, and returning *viâ* Edinburgh. Certainly I dropped my passenger now and again, and also myself on occasions, but we got there, and I had in use the two belts for some considerable time afterwards. In my opinion this goes to prove that those of my fellow motor cyclists who want light passenger attachments and cannot afford expensive vehicles need not be disheartened because of the necessary (?) chain drive conversion. There is a great deal of fun to be got out of the belt drive.

Finally, Mr. Davies expresses the view that on occasions he has hardly found it necessary to carry even a spare fastener. *Always* see there is one in your tool roll, whether riding solo or with passenger, is the advice of one who, even recently in 1908, pushed at night three miles in pouring rain with passenger aboard.

P. W. VINSEN.

[3283.]—I have been an interested reader of the letters and articles on this subject which have appeared in your unrivalled paper, but have not thought fit to express an opinion up to now, as I am certain to be thought biassed in favour of the belt drive. However, I am risking this awful fate by giving the experience of an old friend of mine, a well-known local rider.

This gentleman built one of the first motor cycles in Sheffield, some five or six years ago, when motor cycles were in the first stages of their evolution. For some reason best known to himself, he designed it so as to be driven by chain, with cone clutch on counter-shaft, and, so driven, the machine has done anything from 15,000 to 20,000 miles.

Some months ago my friend decided to build a new mount, and this he also made for chain drive, but before finishing it he decided to overhaul his old steed and dispose of it on the completion of the new one. For the sake of simplicity, and because he wanted the clutch for his new mount, my friend made his old one belt-driven, and here begins the significant part of the story. He purchased from me a belt I made when the Stratex was in the experimental stage, rode his old converted machine for a time, and the other day came to make enquiries about a belt for his new mount, which he had

been making as a chain drive. In fact, he had purchased a chain for that purpose. The increased comfort, simplicity, and silence of the belt drive had converted a chain drive devotee of five years' experience.

I once had the misfortune to be a passenger in a side-car attached to a chain-driven machine, which was competing in a slow race. The machine was fitted with a so-called slipping clutch, but this did not prevent me from having such an awful time that, at the conclusion of the trial, I could scarcely believe there was a sound tube in the machine. It speaks well for the make of the frame, etc., that it could stand such a succession of heavy jerks. To a certain extent this takes place on all chain-driven motor cycles when starting off or running slow, and even at high speeds there is a certain amount of vibration and noise from the chains which is absent from a belt drive.

As to the superiority of the chain for passenger work, you cannot expect a belt which has originally been intended to pull a single rider and machine weighing, say, 22 stones, to perform the same for two people and the extra weight of sidecar, or other attachment. Get a good belt, get it big enough for its work, see that it is properly fitted, and there is no reason why a belt drive should not be as efficient (it is certain to be more comfortable) as a chain drive.

W. H. BERISFORD.

Sidecars.

[3284.]—I have already expressed the opinion in your columns that all sidecars have their good points; and while one must expect that some manufacturers may indulge in what is usually described as "puffing," I think it should be understood that, because certain good features are claimed for a particular type of sidecar, it does not follow that other types do not also possess such features, and possibly others as well. For example, it is hardly fair to say that one type of sidecar will wear twice as long as any other attachment, especially when the type for which the claim is made has several working joints.

I think, too, it has never yet been authoritatively demonstrated that a certain type can be driven faster and with greater safety than any other type.

It is objected that, say, the rigid type of sidecar cannot be ridden straight off by a bicyclist, and the contention is made that there is, therefore, something radically wrong with the attachment; but this is equivalent to saying that a tricycle is radically wrong in itself—a statement that would be very difficult to substantiate.

With all sidecars approximately half the weight of the passenger is applied to one side of the bicycle, and it may be true that if the rider relaxes his vigilance the weight will instantly destroy the balance of the bicycle and pull it over, but this cannot happen with rigid and similar sidecars.

So far as I know, it has never been demonstrated that one type of sidecar takes more power to pull than another; a test carried out with a bicycle, to which various types of sidecars were attached in turn, would be interesting.

Most patterns of sidecars are nowadays capable of being attached to either the right or left side of the bicycle. All sidecars impose some strain on the bicycle frame, as it is at least partly through the frame that the motion is transmitted to the sidecar; but there are few, if any, motor bicycle frames that are not equal to this strain.

No prominent pattern of sidecar is likely to turn over at corners with a passenger on board, and the danger of overturning without a passenger is very easily overcome. All sidecars can be ridden *solus*, but only those of the rigid and similar types are adapted to be driven from the seat with the saddle empty. Various other advantages belong to one type of sidecar as to another.

There are other points I should like to deal with, but this letter is already too long, and I would only add that it is as well to hear all sides before arriving at a decision.

Perhaps I ought to repeat that I am interested in the castor wheel sidecar. DOUGLAS LEECHMAN.

Coil Consumption.

[3285.]—I notice with interest Mr. Roe's article in your issue of March 11th, comparing the consumption of various coils, and as current economy with its many advantages cannot fail to be a subject near to the hearts of both our colonial and home motor cyclists, possibly my own experience may be of interest to such of your readers as have still a leaning towards coil and accumulator ignition.

Mr. Roe's figures in the comparison of the Voltoo two-volt coil with the other makes mentioned cannot but be regarded as remarkable. "Seven times more economical" *(sic)* is indeed a remark to arouse the sniffs of "unbelieving Thomases," of which incredulous fellowship I feel bound to admit I found myself a member when some correspondence passed in your columns a few months ago relative to the remarkable performance of the above coil. Appropriate proverbs anent "pints from quart bottles" seemed to fit the circumstances admirably, until in a rash moment I indulged my curiosity and purchased a Voltoo coil.

I appended some figures determined by aid of our workshop ammeters and speed counters, at Messrs. Benson's (the accuracy of which is beyond reproach), after which it would be superfluous to add that my name is no longer "Thomas."

The engine on which the tests were conducted was a F.N. 2¾ h.p. (70 × 80), with a two-volt accumulator of twelve a.h. capacity. My contact breaker of the ordinary F.N. type has an effective "make" of over one-third of a revolution. Under this condition, which is, of course, quite unsuited to economy, I was surprised to note that the ammeter registered less than one-fifth on two volts, which figure on a four volt circuit represents in equivalent voltage the astonishing fraction of one-tenth, or less. How much less I am not prepared to say, as with the former reading the minimum of the instrument was reached.

In order now to test the capacity of the coil to fire at high speeds, the counter was brought into operation and the engine run to its utmost limits. Three tests were taken in making known the figures, of which I am aware that I am courting odious comparisons with one, Washington; still, here they are (correct to within 20)—3,200, 3,300, 3,350 revolutions per minute.

I need scarcely say in this connection that I shall be most happy to ocularly convince anyone who cares to write me on the subject, and at this point would seek to assure readers that my object in rushing into print is devoid of the slightest interest in, or commercial connection with, any make whatever of either coil or engine, but is solely out of compassion for those unfortunate possessors of current-eating, platinum-pitting coils, who dare not venture far without two bulky accumulators, while I can count on 100 miles, approximately, for each ampère hour capacity of my single small battery, and that by using only one side *(i.e.*, bridge to one terminal) while keeping the other side as a spare.

The spark obtained thereby is better than that of any four volt coil I have yet seen, being of a fine flaming variety and a good half-inch long.

May I, in conclusion, say a word which will appeal to Mr. Roe and others, who are forced to practise extreme economy on account of the difficulties of charging and renewing? If the engine is moderately well tuned as to the carburette, etc., with a good plug and well trimmed points, a single dry cell will fire it admirably with this coil. I hesitate to give the consumption a figure, as I have failed to move any of the ammeters from 0 when in series with this current with the engine running, but Mr. Roe may rest assured that it is not great, and, only that I have ample facility for charging accumulators here, I should certainly carry two dry cells, use them each separately for a few months, then both in series, which plan is most successfully followed by several motoring friends of mine. A. J. LEAVER.

Novel Police Trap near Canterbury.

[3286.]—A friend of mine has just informed me that he was stopped returning from Margate on Easter Monday by two police officers in uniform. He was then told his number and time had been noted by one of their men five miles distant, and his arrival time was noted by the uniformed men. The time is to be worked out, and if he has exceeded the limit he will be prosecuted; if not no further notice will be taken. Surely, this is the latest move in the persecution of motorists. LATEST.

NEXT WEEK.

THE MOTOR CYCLE Special Spring Number

ORDER IT NOW.

MOTOR BICYCLES FOR SALE.

REX, 3⅜ h.p., speedy, reliable; £15.—123, Burges Road, East Ham.

VINDEC Special Motors from Stock.—Woodman's, Peterborough.

3¼ h.p. Rex, splendid condition; £12, or offer.—10, Thornhill Road, Leyton.

ANGLIAN Motor Cycles, with simplest and most practical two-speed gear. —Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

SIDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London agents, H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W.

2 h.p. Minerva, bargain, £7.—G.H., 116, Longley Road, Tooting Junction, S.W.

2 h.p. Quadrant, splendid engine, running order; £7.—Gamble, Flimwell, Hawkhurst.

4 h.p. Antoine, magneto, excellent condition, £18; Osborne four-speed, £3.—Rev. Cooper Barnet.

FAIRY, 3 h.p. twin, nearly new, perfect; genuine bargain. £16. — Morris, Photographer, Bourne.

2¾ h.p. Minerva, vertical engine, splendid order; must sell; £11.—7, Broad Walk, Stratford-on-Avon.

CARR, Fleet Street, Bury.—1907 Triumph, magneto, spring forks, good condition throughout; £29.

CARR, Bury.—1904 Rex, Longuemare, Dunlops, £9 9s.; 1906 Quadrant, perfect, £22 10s.

CARR, Bury.—1908 Triumphs in stock, 1908 Rex in stock; liberal exchanges.

2¾ h.p. Minerva, splendid condition; £13; also sidecar, nearly new, £4.—123, Goldsmith Road, Leyton.

BARGAIN.—2½ h.p. motor cycle, slight repairs; £3 15s.—P. Palmer, Staveley, Chesterfield, Derbyshire.

3 h.p. Juno, Fafnir engine, perfect condition; 10 guineas.—E., 239, Cricklewood Broadway, London, N.W.

1¾ h.p. Excelsior-Minerva, two brakes, switch, handle-bars, good as new; £6.—80, Bispham Road, Southport.

6 h.p. Twin Bat-Jap, two-speed gear, re-enamelled and replated, very fine order.—Garaged 292, High Holborn.

UNREDEEMED Pledge.—3½ h.p., splendid condition, complete; £13.—518, Kingston Road, Raynes Park, S.W.

3½ h.p. Excelsior, £15; detachable forecar, spares, front wheel; sacrifice £22.—19, Waterloo Road, Dunstable.

2¼ h.p. Motor Bicycle, Chater-Lea fittings, Clincher tyres, as new; £10 15s.—33, Church Road, Upper Norwood.

QUADRANT, 3 h.p., in good condition, just overhauled, back tyre re-treaded; £16.—Jeff, Bank Street, Coatbridge.

QUADRANT, 3½ h.p., in good condition, speedy machine; £15, or nearest offer.—Jeff, Bank Street, Coatbridge.

3½ h.p. Triumph, magneto, 1908 model, Mabon free engine, brand new; £48.—Baker and Sons, Friar Street, Reading.

3½ h.p. Triumph, magneto, 1907 model, never been ridden, sent as received from Triumph works; £38.—Baker and Sons, Friar Street, Reading.

3½ h.p. Twin-cylinder Werner, guaranteed in splendid running order and condition; £19. — Baker and Sons, Friar Street, Reading.

3 h.p. Quadrant, strong and powerful machine, everything in excellent order; £18 10s.—Baker and Sons, Friar Street, Reading.

2¾ h.p. Ariel, genuine Minerva engine, tyres quite new; a bargain, £13 10s.—Baker and Sons, Friar Street, Reading.

2¾ h.p. Minerva, Eadie fittings, Longuemare, accessories, and spares, had little use.—Hare, Garage View, Redditch.

BOOTH'S MOTOR EXCHANGE

FOR FAIR DEALINGS.

£6 and a 3¾ h.p. Rex or decent machine of other make secures a splendid 6 h.p. Twin Rex, low built.

£5 and your high built machine secures a low built 3½ h.p. Rex.

We specialise in Rexes. Tempting terms for cash or exchange. Fully guaranteed.

CASH, CREDIT, OR EXCHANGE.

6 h.p. TWIN REX, fitted with new 8 guinea Millford sidecar	£25	10
5½ h.p. REX DE LUXE, Roc clutch, magneto, twin tyres	27	10
5½ h.p. TWIN REX, black finish	22	10
3½ h.p. REX, magneto, speed pulley	18	18
5½ h.p. TWIN REX, magneto, spring seat	23	10
3½ h.p. REX, spring forks, low built	15	15
3½ h.p. REX, 50 guinea model	10	10
4 h.p. ROC, 1907, magneto, clutch	30	0
4 h.p. ANTOINE, M.O.V., low built	14	14
Four-cylinder F.N., magneto	23	10
3 h.p. BEESTON HUMBER, 26" wheels	12	12
2¾ h.p. ARIEL Lightweight, 26" wheels	12	12
3½ h.p. EXCELSIOR, 26" wheels	11	11
3½ h.p. TRIUMPH, 1907	35	0
6 h.p. TWIN ANTOINE, like new	22	10
6 h.p. TWIN ANTOINE sets, new	19	19
5 h.p. TWIN KERRY, smart machine	22	10
5 h.p. TWIN G.B., magneto, spring forks	25	10
TWIN CLEMENT-GARRARD, spring forks, two speeds, 2¼" Palmers	18	18
4 h.p. STEVENS, torpedo tank	16	16
3½ h.p. N.S.U., magneto, 2¼" tyres	22	10
3½ h.p. MINERVA (1907), shop-soiled spring forks, 2¼" tyres, stand	25	10
3½ h.p. MINERVA, very smart	16	16
3½ h.p. CHATER-LEA, vertical engine	13	13
3½ h.p. QUADRANT, brand new (1908),	42	0
2¾ h.p. KERRY, tyres like new	11	10
2½ h.p. KERRY, low and smart	10	10
3 h.p. HUMBER, free engine	11	10
3 h.p. ARIEL, 26" wheels, M.O.V.	11	10
2¾ h.p. ARIEL-MINERVA, low	11	10
3 h.p. WERNER, fitted Shaw engine	12	12
3½ h.p. WHITELEY, spray, good tyres	8	15
3 h.p. CLYDE, M.O.V., magneto	11	10

LIGHTWEIGHTS. SPECIAL OFFERS.

3 h.p. BRADBURY, vertical engine	£10	10
3 h.p. PEBOK, vertical engine, low	10	10
2 h.p. MINERVA, M.O.V., 26in. wheels	8	10
2¾ h.p. SPARK, vertical engine, magneto	10	10
2½ h.p. JAP, good tyres, reliable	8	15
3 h.p. CALVERT, vertical engine, low	8	15
2¾ h.p. DE DION, vertical engine	8	15
2¾ h.p. SAROLEA, vertical, spring forks	9	15
2¾ h.p. DE DION, vertical, less tank	6	15
2¾ h.p. CENTAUR, enamel like new	8	15
2¾ h.p. MINERVA, vertical, low	9	10
2¾ h.p. MINERVA, grand condition	8	15
2¼ h.p. REX, vertical, spray	8	15
1¾ h.p. MINERVA, good condition	6	15
1¾ h.p. QUADRANT, very reliable	6	15
1½ h.p. MINERVA, very fast	5	15

Push cycles part payment.

TRICARS.

10 h.p. TWIN REXETTE, open frame, sprung, two speeds, special finish	£45	10
5 h.p. HUMBER, W.C., open frame, wheel steering, two speeds	35	0
4 h.p. HUMBER, W.C., Phelon & Moore two-speed gear, coach built	18	10
4 h.p. TRENT, W.C., open frame, two speeds, wheel steering	18	10
4 h.p. DERRICK, coach built, free engine	16	16
4 h.p. REX, free engine, special engine	17	17
3½ h.p. ROYAL SOVEREIGN, light	11	11
6 h.p. TWIN REX, forecarriage fitted, magneto, spring seat	27	10
3½ h.p. WHITE & POPPE, M.O.V., Kent three-speed gear	18	16

MOTOR TRICYCLES.

2¾ h.p. BEESTON HUMBER, good tyres	£8	10
3½ h.p. AUTO MOTO, good order	6	10
Tricycle, less engine, two speeds, tyres	3	0

SIDECARS.

MILLS-FULFORD, rigid, like new	£8	10
MILLS-FULFORD, castor wheel	8	10

ENGINES.

New 6 h.p. TWIN ANTOINE, complete	£8	5
Ditto, nearly new	7	10
6 h.p. AVON, W.C., up-to-date, M.O.V.	8	5
5 h.p. ANTOINE, M.O.V., nearly new, W.C.	8	5
2¾ h.p. NOBLE, M.O.V., vertical	3	5
2 h.p. MADISON, good order	1	15
1½ h.p. MINERVA, inclined	1	10

Small engines taken in exchange.
High-class motor cycles wanted for cash.

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HORNER'S Rex Agency accept exchanges on Tourist, De Luxe, and Litette models.

HORNER'S Rex Agency have for clearance second-hand motors, various makes. — Particulars on application at Store Street, W.C. Tel. 13456 Central.

2½ h.p. Rex, 25-guinea model, new, not delivered; will accept £23 10s., or near.—9,753, *The Motor Cycle* Offices, Coventry.

5 h.p. Rex de Luxe, two-speed, 55-guinea model, on order; best offer takes; no reserve.—9,751, *The Motor Cycle* Offices, Coventry.

3 h.p. Ariel, 1907 model, spring forks, equal new, tools and spares; £18 10s., or near offer.—Elly, Glen Lea, Uttoxeter.

2½ h.p. Minerva, 20in. frame, 26in. wheels, torpedo tank, as new; £20, or very near offer.—29, Clinton Avenue, Blackpool.

£6.—2 h.p. light Quadrant, spray, good hill-climber, improved contacts.—Hill, Oak Cottage, Prince's Road, Buckhurst Hill.

TRIUMPH, 3 h.p., magneto, spring forks, new condition, spares; £23.—"Gresford," 6, Weatheroak Road, Sparkhill, Birmingham.

5½ h.p. N.S.U., twin, magneto and fan, 1907 model, with coach-built forecar; £40, or nearest offer.—Milne, Charlwood, Babbacombe.

FOR Sale, Fairy motor cycle, in first-class condition, nearly new; price £20.—W. Rossiter, 23, South Road, Kingswood, Bristol.

LIGHTWEIGHT Motor Cycle, 2½ h.p. Jap engine, adjustable pulley, Watawata, perfect; £16. — Herbert, Preston Street, Faversham.

3 h.p. Triumph, enamel like new, horn, stand, and spares; £26, first cheque, no offer. 'Phone, 1,008, North.—Palmer, 53, Highgate Hill, N.

BAT, 2¾ h.p., genuine De Dion, excellent condition, fast, reliable; trial any time; £20 lowest. — Nightingale, Hazeldene, Crawley.

TWIN Rex, spring forks and saddle, good condition £19; seen any time; suit sidecar. — Heathcoat, 13, Longley Road, Tooting, S.W.

MINERVA, 2¾ h.p., 1907, perfect condition, detachable inner tubes; £20, or near offer.—W. S. Pinchin, 14, Cambridge Park, Wanstead.

2¾ h.p. Kerry Motor Cycle, Clincher tyres, Stanley belt; £9 15s.; wanted, four-cylinder F.N., 4½ h.p.—A., 8, Herndon Road, Wandsworth.

ROC and N.S.U. Agent.—In stock: 4 h.p. Roc, with two-speed gear, 3 h.p., 3½ h.p., and 6 h.p. N.S.U.'s.—Hodgson, 10, Horton Road, Bradford.

ROC, 4-5 h.p., free engine, foot clutch, foot brake, Palmer cord tyres, magneto; bargain, £19 10s.—W. Heane, Marlborough Road, Woking.

3 h.p. Quadrant, equal to new, every part, including tyres, in splendid order; a real bargain.—Dibben and Sons, Motor Garage, Wimborne.

TRIUMPH, magneto, late 1906, very little used, perfect, full equipment; bargain, £22 cash.—Particulars, Moffitt, 105, Manchester Road, Burnley.

1907 2¾ h.p. Buchet, lightweight, spray, low 21½in. frame, vertical engine, Dunlops, perfect condition; £15; photo.—80, Bispham Road, Southport.

3 h.p. Hobart, excellent running order, Clincher and Dunlop, spring seat-pillar, Longuemare, trembler; £11 10s.—James, Fountain Street, Buxton.

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

3 h.p. Chase, M.M.C., and Millford sidecar, Longuemare, new Dermatine, good tyres; genuine bargain, £17.—Dalcorn, 56, Dulwich Road, Herne Hill, S.E.

1¾ h.p. Ariel Cycle, Minerva engine, splendid condition, tyres as new; seen and tried Sunday; £11. — Pearce, Gladstone Road, Buckhurst Hill, Essex.

HUMBER, 3 h.p., powerful, splendid condition, good climber, Dunlop tyres, stand, bag, horn, accumulator; £10 10s.—Owen Fortin, London Road, Sawston.

3½ h.p. Minerva, French grey, spring forks and seat, new engine, automatic carburetter, low, powerful; trial; £17.—229, Burdett Road, Limehouse, E.

TRIUMPH, 3½ h.p., late 1907, perfect condition, new Shamrock studded cover on rear, Autoclipse lamp, all spares; £32 10s.—Triumph, 47, Lamb's Conduit Street, W.

N.S.U., 3½ h.p., magneto, spring forks, in good condition, reliable, guaranteed; £25; no offers accepted.—E. Martin, 193, Brook Street, Kennington, London.

BARGAIN.—2½ h.p. Minerva (vertical), new enamel and plating, engine good, tyres good; £10; appointment. — F.V.S., 10, Queen's Road, Leytonstone, N.E.

REX, 3½ h.p., good hill-climber, studded back tyre, everything in perfect order, a splendid bargain, £15, or offer. —Cockson, 9, Old Park Avenue, Balham, S.W.

KELECOM, 2¾ h.p., two accumulators, new belt, Palmers, lamp, horn, stand, carrier, comfortable, good running order; £13.—Bastable, High Street, Harlesden.

6 h.p. Jap-Ariel, with Liberty sidecar, tyres like new, whole machine perfect condition, very fast and powerful. 'Phone, 7,646, Wall.—Wood, 33, Cornhill, London.

GOOD Hill Romper, 2¼ h.p. Brown engine, 3½ h.p. N.S.U. carburetter, Clincher tyres and tubes, like new, all perfect; £6.—P. Wallis, Barnabas Road, Cambridge.

LIGHTWEIGHT 2½ h.p. Jap, B.S.A., F.N., new Dunlops, handle-bar control, accumulator and dry battery, stand, lamp, horn, numbers; 11 guineas—339, Brixton Road, S.W.

FOR Sale, Triumph, 3½ h.p., 1907, standard, magneto, perfect condition, heavy tread on back tyre; price £33, or offers —No. 9,438, *The Motor Cycle* Offices, Coventry.

LIGHTWEIGHT Ariel, 2½ h.p., spring forks, two accumulators, rim brake, spares, horn, stand, and carrier, in going order; best cash offer to £12.—Parkin, East Boldon.

1906 3 h.p. Triumph, magneto, Goodrich band, Riches, B100, 2,500 miles, excellent condition; owner buying 1908; £25. — Seen and tried at Dunge House, Broseley, Salop.

3 h.p. Fafnir, Chater-Lea, Dunlops, speedometer, head lamp, two accumulators, cut-out, low and powerful, condition as new; £19.—Daws, 45, West Hill, Wandsworth.

TWIN Rex, winner Buxton Hill-climb, excellent condition, Fuller coil, thumbslide control, electric horn, two belts, one new, stand, spares; £18.—C. Lloyd, Shirburn, Ramsgate.

BELFAST.—5½ h.p. twin Rex, new; £20. J. C. Savage, 119, Donegall Street.

5-6 h.p. Zedel, twin cylinders, all accessories, costly machine; accept £18. —98, Potternewton Lane, Leeds.

3½ h.p. Noble, long bars, trembler, Longuemare, enamelling and plating good condition, engine perfect; any expert examination; £18.—Engineer, Electricity Works, Consett, Durham.

IMPERIAL Rover, 3½ h.p., with free engine clutch, chain drive, and all accessories, together with sidecar, in splendid working condition, spring seat, starting handle, etc.; £20 cash, thorough bargain.—Otten, 22, Cambridge Gardens, Notting Hill, W.

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Not if you deal with FARRAR.

CASH, CREDIT, or E CHANGE.

5½ h.p. N.S.U., magneto, two speeds	£36	0
5½ h.p. REX DE LUXE, (twin tyres, clutch	28	0
3½ h.p. 1907 REX, 26 x 2½ tyres	18	0
4-cylinder F.N., fine machine	26	0
4½ h.p. G.B., magneto, Nala two speeds..	37	0
3½ h.p. REX, 22" frame	11	0
5 h.p. Twin KERRY, very low	22	0
5 h.p. Twin PEUGEOT, lovely goer ..	23	0
5½ h.p. Twin REX, lovely goer	20	0
4 h.p. ANTOINE, magneto, 1907	22	0
3½ h.p. 1906 REX, spring forks, etc.	15	0
3½ h.p. 1905 REX, spring forks, 26" wheels	13	0
3 h.p. TRIUMPH, lovely goer	25	0
3 h.p. MINERVA, vertical, M.O.V.	12	0
3 h.p. N.S.U., fine goer	16	0
3½ h.p. EXCELSIOR, smart	10	0
2½ h.p. R & P., 26" wheels, vertical	10	0
3 h.p. CLARENDON, good, vertical ..	10	0
3½ h.p. AUTO-MOTOR, spray, vertical..	10	0
2½ h.p. GRIFFON, spray, vertical	10	0
3 h.p. NOBLE, spray, vertical	10	0
3 h.p. REX, vertical	10	0
2½ h.p. HUMBER, spray, trembler	10	0
1½ h.p. MINERVA, spray, 26" wheels....	6	10
2 h.p. QUADRANT, spray, smart	7	10
2½ h.p. HUMBER, spray	9	0
2½ h.p. REGAL, vertical, spray, 26" wheels	9	0
2½ h.p. CYCLONE, spray, vertical	7	0
2 h.p. MINERVA, M.O.V., 26" wheels..	9	9

ALBION V BELTING.

New principle longest life.
¼" 7d., ⅜" 8d., ½" 9d., 1" 10d. per foot.

TRICARS.

5½ h.p. REXETTE, spring frame	£35	0
5 h.p. REXETTE, two speeds	29	0
5 h.p. REXETTE, new back tyre	27	0
4½ h.p. Water-cooled Quad, two speeds ..	16	0

Rubber and Canvas V Belting. Embodies all good points of other rubber belts without their drawbacks. "A distinct improvement."

NOTE.—The prices are between 33% and 50% less than other makes. Good rubber belts need not be dear. Send cash for sample length on approval. ¼" 9d., ⅜" 1/-, ½" 1/4, 1" 1/8 per foot. Any length cut. Fasteners 6d. each.

ENGINES.

2 h.p. Minerva	£2 10	3 h.p. King ..	£2 10
3½ h.p. Quadrant	4 10	3 h.p. De Dion	4 0
3½ h.p. Standard	8 8	3½ h.p. Lucas ..	2 19
3 h.p. X.L.	2 19	4½ h.p. Aster....	5 10
1½ h.p. Minerva and frame			2 5
3½ h.p. Rex and frame			4 10
2 h.p. Simms, fitted with magneto.....			3 0

SIDECARS.

Rigid	£3 10	Ariel, rigid.....	£3 10
Montgomery	4 10	British Standard	5 0

ODD BARGAINS.

Osborne Free-engine Clutch	25/-
Stevens Tricar Clutch, like new.....	25/-
Lycett's L72 Saddle! quite new.....	6/9
"Vim" Motor Cycle Rear Brakes	6/-

NEW TYRES FOR OLD.

Genuine Continentals.	Cover.	Tube.	Genuine Continentals.	Cover.	Tube.
26 × 2	24/-	9/6	28 × 2	25/-	10/-
26 × 2¼	25/6	10,-	28 × 2¼	27/3	10/6
26 × 2½	29/6	11/-	28 × 2½	29/9	11/3

3/- allowed for old covers, 2/- for old tubes.
Traders and Agents send for discounts.

CANTILEVER SPRING SEATS.

Luxurious and strong. Fit any machine.
10/- each.

LYCETT'S "LIGHTNING" STANDS.

FIRM. RIGID. STRONG.
For 24in., 26in., or 28in. wheels.
4/9 per pair. Worth three times the money.
Send for Price List of Accessories. Pounds saved.

HIGH-CLASS MOTOR CYCLES WANTED.

E. FARRAR,
Albion Works, Square Road, HALIFAX.

MOTOR BICYCLES FOR SALE.

2¾ h.p. Ariel-Minerva, good running order, recently overhauled, two accumulators, new belt, tyres, plating, and enamel excellent; £13, or nearest offer.—Harper, The Avenue, Wanstead.

LIGHT F.N., 1908, delivered by makers three weeks ago, perfect, £31, or near offer; exchange new 1908 3½ h.p. Rex or Triumph, cash adjustment. — 2, Burne Street, Edgware Road, London.

KERRY, 2¼ h.p., tyres, belt, and accumulator new, engine, etc., good as new, many spares, tools, Lycett's stand, carrier, large gas lamp, horn; trial with pleasure; £12.—Walker, Chipstead, Sevenoaks.

3½ h.p. Brown, Dunlop tyres, two accumulators, Duco belt, Lucas Acetyphote lamp, horn, numbers, and spares, large toolbag; price £16; seen any time. —Shaw, Newton Villa, Arnison Road, East Molesey.

FAFNIR, 3 h.p., good order, ready for road, two accumulators, footboards or pedals, takes any hill, extra tank, tools, ridden for inspection; £15.—Harley, 55, May Street, West Kensington, London, W.

BIRMINGHAM.—3⅜ h.p. spring fork Rex, black and gold, Peter-Unions, unscratched, two accumulators, special bars, many improvements, condition equal to new; £15 15s.—Lewis, 23, Arden Road, Birchfields.

QUADRANT, 3½ h.p., 1907, winner at Sharpenhoe, guaranteed to climb Cudham Hill, Palmer cords, Lycett's stand, two accumulators, complete with spare valves, etc.; a thorough bargain, £28, lowest.—Below.

TRIUMPH, 3½ h.p., 1906, new Palmer cover front, non-skid back, in thorough good going order; £20.—Whitaker, Green Street Green, Orpington.

MINERVA, 2 h.p., mechanical inlet, spray carburetter, absolutely equal to new, scarcely used, thoroughly reliable, easy starting, good hill-climber; bargain, £12, or best offer. — Chapman, Kingsgrave Road, Dover.

5½ h.p. 1907 Twin Rex, variable pulley, de luxe footrests, new Palmer tyres, spares and all refinements, guaranteed perfect, ride 100 miles to intending purchaser; sacrifice £22 10s.—105, Milnrow Road, Rochdale.

3½ h.p. Kerry, very low build, 26in. wheels, nearly new tyres, Longuemare, Dermatine, all in excellent condition, splendid goer; £16 cash, no offers; approval anywhere. — Jermy, Leighton Holme, Frimley Green, Surrey.

BRAND New Chater-Lea Motor Cycle and Sidecar, latest design throughout, including 6-7 h.p. Jap twin engine, magneto, spring forks, spares, tools, etc.; sacrifice 35 guineas; appointment. — J. May, 11, Killyon Road, Clapham.

1907 3½ h.p. Quadrant, magnificent machine, practically new, little used, thoroughly reliable, fire walking pace, climb a steeple cash wanted badly, accept £25, or nearest offer.—Motorist, 9, French Place, Shoreditch, London.

FAFNIR, 3½ h.p., Chater-Lea, Longuemare, Stanley Dermatine, Clincher, Acetyphote, speedometer, and all spares, everything perfect as when new, splendid machine, and a bargain, £19.—Hughes, 41, Willesden Lane, Kilburn, N.W.

TWIN Minerva, brand new January, 1907, been little used, enamel and everything just like new, and complete, as per makers' catalogue, two accumulators, stand, horn, very fine machine; £25.—Wallis, grocer, Hills Road, Cambridge.

2½ h.p. Jap, Continental belt, new trembler coil and accumulator, Clinchers, in good condition, engine thoroughly overhauled by makers, F.N. carburetter, perfect order for the road; £14, or near offer.—Apply, Lockyer, Penmener, Parkstone, Dorset.

3½ h.p. Quadrant, 1906 pattern, but very little used, and as new, enamel and plating perfect, spring forks, tyres unscratched, very fast, and splendid hill-climber, with all spares, stand, etc.; price £25, no offers.—G.G., 34, Cambridge Place, Paddington, W.

OTOR BICYCLES FOR SALE.

3 h.p. Minerva, in running order; £4
4 10s.—Harriss, Ropley, Alresford, ants.

8 15s.—2½ h.p. Werner, good condition and order, Dunlops.—33, Werrington reet, Camden Town.

UMBER, 3 h.p., belt drive, re-bushed; £6 10s.—Errington, 103, Archel ad, West Kensington.

907 Brand New Triumph Motor Cycles; £41; exchanges arranged. — Wauope's, 9, Shoe Lane, E.C.

1 h.p. Excelsior, Longuemare, perfect, 2 with sidecar; £16 10s.—Jeweller, 28, gh Street, Kingsland, N.E.

F You Want Bargains in second-hand motor cycles you can get them at auchope's, 9, Shoe Lane, E.C.

EW 1908 3½ h.p. Standard Minerva, only ridden 500 miles, with spares, etc.; 5.—Fairhaven, Milford-on-Sea.

PECIAL Excelsior, 3.6 b.h.p., long, low, spring forks.—Particulars, Major rt, Handsworth, Staffordshire.

16.—Minerva, 3½ h.p., picked machine for journalist, distributer coil.—26, nsdowne Road, Bromley, Kent.

RIEL-MINERVA, 2¾ h.p., good condition; £15.—Heathcote, Minstead ad, Gravelly Hill, Birmingham.

1 h.p., magneto, chain drive, vertical 4 engine; best offer cash, or exange.—13, Leonard Street, Hull.

RADBURY.—2¾ h.p., good condition and going order; £9.—T. Heyworth, otographer, St. Annes-on-Sea.

1 h.p. White and Poppe, Chater-Lea 2 motor cycle, thoroughly reliable; eap; offers.—186, Peckham Rye, S.E.

3 h.p. Chase, Zedel engine, low frame, 4 Chater-Lea fittings, etc.; £15. — auchope's, 9, Shoe Lane, London, E.C.

1 h.p. Minerva, spring forks, perfect; 2 particulars, photo; best reasonle offer.—71, Burghley Road, Hornsey.

1 h.p. Fafnir, 1907, Chater-Lea, low 2 built, hardly used; cost £40, ac pt £23; bought car.—57, Argyle Road, ord.

RIUMPH, Triumph, 3 h.p., magneto, in perfect running order; £25, no ers.—W. Ball, Homeleigh, Stratford-Avon.

1 h.p. Standard Minerva, 1907 model, 2 spring forks, condition absolutely new; £19 19s.—Wauchope's, 9, Shoe ne, E.C.

OTO REVE, new from makers, cost over £40, with complete accesries; £36.—No. 9,750, *The Motor Cycle* ices, Coventry.

h.p. Raleigh-Fafnir, Longuemare, new Dunlops, two accumulators, Castle l, splendid condition; £15.—Spiller, tfield, Taunton.

RIUMPH, 1907, 3½ h.p., magneto, not ridden 500 miles; £38; trial by apintment only.—Cedric Bonstead, Westld, Wimbledon.

1 h.p. Jap, Dunlops, Brooks B105, 2 spring forks, Davison gauges, good ing order; 12 guineas.—Motor, 168, ple Road, Penge.

RIUMPH, 1907, 3½ h.p., magneto, nearly new, perfect condition, horn, gas mp, spares, etc.; sacrifice £33 lowest.— Parade, Leamington.

3 h.p. Centaur, chain driven Humber 4 engine, spray carburetter, carrier, nd, good condition; bargain, £8. — T. nchin, Binfield, Berks.

ANCHESTER.—3 h.p. Bradbury, splendid condition and running order, 6 machine; seen after 6-15 p.m.; £12. . Burton, 158, Chorlton Road.

1 h.p. Alldays, with spring forks, 2 spares, and accessories, very powful, and in perfect order; £18.—J. mes, 139, Acre Lane, Brixton, S.W.

906 3 h.p. Triumph, magneto, spring forks, absolutely as new, ridden out 1,500 miles, not used last year, aranteed perfect in every way; £24 .; seen any time.—119, South Lambeth ad.

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New pair of Motor Cycle Wheels, 26in., belt rim, and two cable brakes fitted	£2 0
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New Charging Dynamo, Switchboard	£2 10
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Fifty pairs Xl'all Spring Forks (1908).	
Massive Horns, deep tone	3/9
Double-twist Horns, terrible noise	4/9
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High-tension Wire ..... per yard	1/1
Low-tension Wire ..... "	-/5
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New Motor Pedals, 4½in. wide .. per pair	4/6
Hellior Searchlights, detachable magnifying mirror lens, fixed or separate generators, sold elsewhere 25/-	12/6
Gas Lamps, separate generators	5/3
Brooks B100 Saddle	11/6
Box of Brass Terminals	-/9
Patterns for 4 h.p. Cylinder M.O.V.	40/0
Three Second-hand Plain Coils	8/-
Twin Invicta Trembler Coil	12/6

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Rex de Luxe, 3½ h.p. Magneto Rex, four-cylinder F.N., 4 h.p. Roc, 1907 Triumph, Lightweight F.N., Jap, 3½ h.p. Bat, Barlock Typewriter, Gramaphone, Sidecars.

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Coronet Works, Wade Street,
HALIFAX.
Telephone 198 Y.

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5 h.p. Twin Peugeot, Chater-Lea, splendid machine, as new, not done 500; £28 10s.—128, High Road, Tottenham.

3½ h.p. Twin Werner, low machine, long bars, only soiled, and in beautiful order; £17 10s.—Above address.

3⅜ h.p. Rex, spring forks, Continentals, as new, grand goer; £15.—Address above.

3 h.p. Trent, Chater-Lea, long bars, low seat; a genuine bargain, £11 10s.—Address above.

2½ h.p. Vesta, Chater-Lea, girder forks, spray, accessories, etc., splendid condition, and guaranteed; £6 15s.—Address above.

2¼ h.p. Humber, Longuemare, almost new, grand hill-climber, long bars, etc., guaranteed; £8 10s.—Address above.

2¼ h.p. M.M.C., low-built Chater-Lea frame, thoroughly done up, as new, very powerful and fast; real bargain, £12 10s.—Address above.

3½ h.p. London, Chater-Lea frame, handle-bar control, accessories, very fast and powerful, splendid condition and perfect working order; great bargain, £11 10s. —Address above.

5 h.p. Twin Hamilton, B. and B. carburetter, very fast and powerful, perfect condition, Mabon clutch, grand for passenger work; £17 10s.—Address above.

FOUR-CYLINDER Durkopp, in perfect condition throughout, 2½in. tyres, two accumulators; a great bargain, £25. —H. Pye, Motor Engineer, Mansfield.

3½ h.p., built by Bonnard, French racer, winner of hill-climbs, new last September, very low, perfect condition; £25.—Palmer, 33, Huron Road, Balham.

2¾ h.p. Lamberjack, Zedel engine, Longuemare, low, long bars, three belts, two pulleys, lamp, and spares; £14. —Weedon, 20, Mardale Street, Shepherd's Bush.

3 h.p. Centaur, two speeds, tyres excellent condition, free engine clutch, engine overhauled by Centaur Co.; lowest £22.—Apply, Easton, 4, Victoria Road, Worthing.

1908 Lightweight Rex, magneto, 2¼ h.p., new, never been ridden; owner gone in for car after ordering same; £22 quick buyer. — Lever, Lord Nelson Inn, Accrington.

VINDEC Special, 5 h.p., Truffault, magneto, many improvements, new August, 1907, not ridden 500 miles; owner going abroad; nearest to £38.—Oreston, Sidcup, Kent.

2½ h.p. Minerva (inclined), good going order, toolbag, tools and spares, lamp, Price's stand; trial any time after 5.30 p.m.; take £9.—Dugdale, 9, Oat Street, Padiham.

3½ h.p. Quadrant, vertical engine, no sign of wear, in the pink of condition, not run 500 miles; £21, splendid bargain.—On sale at Wauchope's, 9, Shoe Lane, London, E.C.

VINDEC Special, 1905, 3½ h.p., handlebars, 1907 pattern, splendid condition; cash offers; Goodlad's (42 mile) speedometer, unused.—Walker, 105, Stirling Street, Grimsby.

3⅜ h.p. Rex, splendid condition, spares; trial given; £13 10s.; 150 Watt dynamo, exchange motor cycle accessories; wanted, 26 by 2¼ cover.—Lee, Clopton Road, Stratford-on-Avon.

QUADRANT, 3½ h.p., 1905-1907 pattern, guaranteed not ridden above 500 miles, condition as new, about £5 accessories; price £27.—Seen at Hunt's Stores, Newgate Street, London.

QUADRANT, 3 h.p., spring forks, etc., £15; Quadrant, 3 h.p., splendid condition, £17; Ormonde, 2 h.p., good going order, £6; any of the above seen by appointment. — 69, Hill Rise, Richmond, Surrey.

3 h.p. Fafnir, perfect throughout, engine good as new, marvellous compression, climb a steeple, crawl in traffic, beat many 3½ h.p.; thundering bargain, £12, or exchange.—Motor, 86, Colvestone Crescent, Dalston, London.

MOTOR BICYCLES FOR SALE.

QUADRANT, 1907, 3½ h.p., scarcely ridden, complete, Dermatine, stand, guaranteed perfect; approval; immediate sale; bargain.—49, Edgbaston Road, Smethwick, Birmingham.

LOOK!—Minerva, 2¾ h.p., Chater-Lea, spring forks, Dunlops, handle-bar control, Watawata, complete spares; genuine bargain, £15; call any time.—Rogers, 253, Bath Road, Hounslow.

2¾ h.p. F.N., Brooks B100 saddle, Sham-rock-Gloria belt, and engine all new, with horn, tools, two 20 amp. accumulators, stand, carrier, numbers; £14; seen any time.—137, Kew Road, Richmond, Surrey.

3½ h.p. Brown, Clincher A Won tyres, accumulator, horn, lamp, carrier, stand, spares, tools, etc., good reliable machine, splendid condition; approval; deposit; £22.—J. Phillips, Hindsford House, Chorley.

TRIUMPH, 3½ h.p., magneto, perfect running order, £34; also Triumph, 3 h.p., magneto, splendid order, £25; handle-bar controlled carburetter fitted to either for 32s. 6d.—Hitchings, Ltd., 74, Bold Street, Liverpool.

A BARGAIN.—4½ h.p. Antoine motor cycle, Eadie fittings, 26 by 2½ Palmer cord tyres, as new, handle-bar control, also Chater-Lea trailer, with Dunlop tyres; £20.—H. Lyons, jeweller, Frogmore Street, Abergavenny.

2¾ h.p. Excelsior, low built, Clincher tyres, B. and B. carburetter, engine like new, plating and enamelling excellent, stand carrier, horn, toolbag, etc.; £12 10s.—Torkington, Mount Pleasant, Hazel Grove, Stockport.

3½ h.p. Quadrant, 1907, magneto, Mabon free engine, guaranteed perfect, expert examination invited; purchased car; accept £26; also Millford sidecar for above; cost £11 11s., been 100 miles, £7 7s.—20, Beacontree Road, Leytonstone.

7-9 h.p. Twin, Chater-Lea No. 6 frame, Nala two-speed gear, 2½ tyres, practically new, enamelled grey, and white lines, perfect, every accessory; cost over £85, take £40; seen any time.—Motorist, 63, Nimrod Road, Streatham Park.

2¼ h.p. Excelsior Motor Bike, £8, in going order; Crypto dynamo, 25-volt, 6 amps., cost £7 10s., take £2 10s.; Fuller's 20 amp. accumulator, type C2, uncharged, cost 17s., take 14s.; offers.—Will, 40, Plashet Grove, Upton Park, S.X.

LOOK.—3 h.p. N.S.U., accumulator ignition, 26 by 2½ extra heavy tyres, non-skid band back, enamelling and plating as new, compression bears 14 stone, splendid running order; seen any time; 14 guineas.—186, South Lambeth Road.

3½ h.p. Kerry, in thorough good running order, fast and reliable, long handle-bars, low position, footboards, starting handle, new tyre, girder forks, Longuemare, Millennium stand etc.; £15 10s.—C.A.S., Glen Rosa, Coleshill Road, Teddington.

ARIEL, 3 h.p., nearly new, perfect condition, ridden 600 miles, footrests, spring forks, two accumulators, two belts, carrier-stand, lamp, horn, and spares, never punctured; bargain, £20.—Chivers, 55, Wilton Road, near Victoria Station, S.W.

5 h.p. Peugeot, June, 1907, ridden 1,000 miles, Chater-Lea fittings Dunlops, 2½in., Roberts non-skid on back, Longuemare carburetter, nickel and enamel perfect, two accumulators, in perfect running order; £30.—9,748, *The Motor Cycle* ffices, Coventry.

3½-4½ h.p. Twin Peugeot, No. 6 Chater-Lea frame and fittings, complete with fixed sidecar (adjustable), both as good as new; ready to ride away; first offer over £28 secures this bargain; bought new machine.—21, Highbury Quadrant, London, N.

3 h.p. Humber and Sidecar, free engine, new studded non-skid on back wheel, new canvas non-skid on front wheel, sidecar in green, £12 10s.; also 3 h.p. Humber, without tyres or brakes, £4.—The Motor Repair and Supply Co., 107, Bridge Road, Hammersmith, W.

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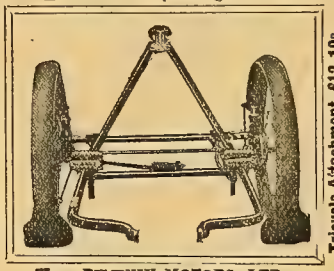

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QUADRANT, latest, 3½ h.p., guarantee in perfect condition, equal new, no ridden 300 miles, magneto, Longuemar carburetter, with B. and B. throttle, com plete with toolbag, horn, several spares 32 guineas lowest; approval; deposit.—Daniel, Langdale, Port Talbot.

MINERVA and Rex. — We carry th largest stock of spare parts in th provinces for these machines, can delive new machines from stock at low prices cash, exchange, or gradual payments charged accumulators for hire, 1s pe week.—Cookson Bros., 511, Chester Road Old Trafford.

1907 Rip, spring frame, 5 h.p. Peugeo engine, magneto, special tubula carrier and case, all spares, etc., includ ing new 1in. Dermatine and two re valves, complete, machine not done 1,00 miles, guaranteed perfect, and looks it trial invited; £32.—Harborne, Cambridg Road, Wanstead.

QUADRANT, 3½ h.p. (October, 1906), bat tery ignition, together with sidecar Autoclipse lamp, generator, apron, too box, new tyres on back wheel and sid car, Rich tube in back wheel, spar butted tube and parts; trial run by ap pointment.—Robini, 3a, Dulwich Roa Herne Hill, S.E.

2½ h.p. Ariel, in good running orde new belt, spray carburetter; bargain, £10; also 3½ h.p. Humber trica less front seat, in splendid order, free e gine, new chains, new cover on bac wheel, take £12, or exchange for powerfu twin engine and cash.—McClellan King's Road, Whithorn.

1¾ h.p. F.N., 1908, only ridden 400 mile £30, or near offer; N.S.U. fan, 4½i pulley, 1in. belt, 20s.; one pair Wright adjustable footrests, 10s.; Ariel couple 15s.; whole-plate camera, £5; half-plat No. 7 Kodak, £4 10s.; Panoram Kodal picture 12 by 5, £2.—Brown, 173, Stan hope Road, So. Shields.

1907 5-6 h.p. Twin Rex, cantilever sea spring forks, perfect, nearly new absolutely reliable, climb anything wit sidecar, crawl in traffic, beat most m chines on road; sacrifice £22, or nea offer, or exchange.—Stanton, 86, Colv stone Crescent, Dalston, London.

EDINBURGH. — Alexander's Motor E change, 110, Lothian Road. Immed ate delivery from stock latest 1908 model Quadrant, Rex, Vindec, Minerva, Moto Reve, Ariel, Griffon, N.S.U. Buy now an secure a mount for Easter. Soon it wi be too late. Liberal allowance for you old machine. Nat. tel., 5021.

4 h.p. Antoine, Chater-Lea low fram 26 wheels, springs back and fron plain coil, two accumulators, B100, Wat wata, horn, plates, spares; trial here expert examination with pleasure; ver fast, climb anything; £18, or exchang lower power and cash adjustment. Greenhill, 12, Cross Street, Woolwich.

GODFREY! The Rex man!—Buy you new machine through Godfrey, an have it thoroughly tuned up free cost. All makes supplied; Rex a spec ality; any motor cycle thoroughl tuned up, no matter what make or h.p. charges moderate; machines coaxed t win hill-climbs; advice given.—O. C. Go frey, 15, Drylands Road, Crouch End, N

5-6 h.p. Peugeot Engine, Chater-Lea fi tings, motor bicycle and forecar, e panding brakes in drums, upholstered red leather, wicker body, 2½in. tyres, va able pulley and free engine clutc spring forks, to convert back to bicycl shop-soiled; usual price £63, sell 56 gui eas, or near offer.—Quick, Honito Devon.

SPECIAL Clearance Lines.—1¾ h.p. Mi erva, £5 15s.; 2¾ h.p. Ormonde, £ 15s.; 2 h.p. Peugeot, £7 10s.; 2¾ h.p. Ja Enfield motor cycle, £6 10s.; 2 h.p. Qua rant, £6 10s.; 2¼ h.p. Humber, £6 10s.; h.p. Aster, £7 10s.; 4½ h.p. twin Givaudan £8 10s.; 4 h.p. twin Hamilton, £10 10s 1¾ h.p Werner, £6 10s.; 2 h.p. Raleigh, £ 10s.; 2¾ h.p. De Dion, £9; 3½ h.p. M.M.C Chater-Lea fittings, £10 10s.—Wauchope 9, Shoe Lane, Fleet Street, London.

TRICARS FOR SALE.

M.M.C. Tricar, complete; £12 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, ondon, E.C.

-6 h.p. Twin Rex Triette, in splendid condition; £22.—142, Lewisham High oad, New Cross.

h.p. Kerry Tricar, in good running order; £10 10s.—L. Brown, 7, Marihall Road, Lee, S.E.

VON Trimobile, three speeds and reverse; £27 10s. — Motor, 44, High reet, Wells, Somerset.

h.p. Quadrant Carette, good condition; £38.—Full particulars, West, Walton Street, Oxford.

15.—Kerry tricar, water-cooled, Clincher, bucket seat, in splendid contion; trial allowed. — 34, Goldsmith oad, Acton.

½ h.p. Two-speed Rover Tricar, grand condition; £20; will take two ish cycles part payment. — 6, Swan nk, Bilston.

¼ h.p. M.M.C. Light Tricar, in perfect running order, very compact; seen nning; £8 15s. to clear. — 128, High oad, Tottenham.

½ h.p. M.M.C. Tricar, two speeds, reliable, coach-built, double fan, od condition; £25; part exchange.—136, mbeth Walk, S.E.

½ h.p. Minerva Runabout, Mabon free engine clutch, convertible to single achine; £25.—Garaged at Wauchope's, Shoe Lane, Fleet Street, London, E.C.

RICAR, 4 h.p., free engine, handle starting, fan-cooled, £18; also Humr tricar, soiled, will sell cheap, barin.—H., 112, New King's Road, Fulham.

UMBER, 4½ h.p., Palmer cord tyres, two-speed, water-cooled, fast and werful; price £30; motor bicycle part yment.—Geo. Farmer, Leamington Spa.

½ h.p. Tricar, two speeds, open frame, wheel steering, free engine, sprung ame; £26, or exchange motor cycle and sh.—Brain, 106, Powis Street, Woolwich.

E DION 4½ h.p. Water-cooled Tricar, open frame, Eagle, chain driven, reable, strong comfortable; £40.—Smith, ronshill, Burnell Road, Sutton, Surrey.

½ h.p. Stevens, water-cooled, Chater-Lea, open, coach-built, two speed, heel steering; cost £70, bargain, £28; oto.—27, Albert Road, Hale, Cheshire.

UMBER, 5 h.p., water-cooled, two speeds, coach and bucket seats, a liable touring machine; £35. — Claud ayman, Field Cottage, Dennett's Road, E.

RICAR, 4½ h.p., water-cooled, radiator in front, two-speed gear box, ain drive, first-class order; price £21, west.—Saunders, engineer, Grant Road, roydon.

½ h.p. Kelecom Light Tricar, in excellent condition, and splendid runng order, very powerful and reliable, od on hills; £22.—128, High Road, Totnham.

½ h.p. Bercley Tricar, chain drive, Brooks saddle, footboards, standrrier, in first-class order; £12 10s.—auchope's, 9, Shoe Lane, Fleet Street, ondon, E.C.

h.p. Rex Litette, nearly new, two-speed, magneto, twin wheel, climb ything, very fast; £45, or exchange 07 motor cycle and cash. — 9, Church ill, Walthamstow.

½ h.p. Singer Runabout, Fit-all two speed and free, Simms H.T. mageto, open frame, wheel steering; £20.—ynes, Furniture Stores, Lewisham High oad, New Cross.

½ h.p. Phœnix Trimo, Fit-all two speeds, coach-built front, thorughly overhauled and done up, very nart and fast machine; £30.—128, High oad, Tottenham.

h.p. Twin-cylinder Water-cooled Rexette Tricar, two-speed, twin back heel, seat for two in front, perfect rder and condition, just ridden from the orth of England to London; £48; any rvere trial.—Wauchope's, 9, Shoe Lane, leet Street, E.C.

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9, Shoe Lane, Fleet Street, London.
Wauchope's have second-hand motor cycles from £6 10s.

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Wauchope's sell on commission; no sale no charge.

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Wauchope's have a large selection of miscellaneous goods.

TRICARS FOR SALE.

3½ h.p. Jackson Runabout Car, two speeds; £10 10s. — Wauchope's, 9, Shoe Lane, E.C.

£20.—Phœnix-Antoine, 4 h.p., two speeds, coach-built body, studded back tyre, lamps, etc.—H., 57, Coventry Road, Ilford.

5-6 h.p. w.c. Armadale Tricar, forward and reverse speeds, coachbuilt, open frame, wheel steering, C.L. fittings; £27. —219, Hoe Street, Walthamstow.

5 h.p. Twin Kerry, light machine, Millford front, band brakes, and all in grand condition, very fast, and good hill-climber; great bargain, £30. — 128, High Road, Tottenham.

TRICAR, Rex, 4½ h.p., coach-built front, fitted with Phelon and Moore two-speed gear, will climb a mountain; must be sold; a bargain, £33 10s., quick sale. —Taylor, 39, Bank Street, Accrington.

LAGONDA, 10-12 h.p., water-cooled, three speeds, magnificent touring machine; 70 guineas, accept good motor cycle in part; appointment. — Captain Hyne, 6, Apsley Villas, Clapham Road, S.W.

4 h.p. Wolf, water-cooled, two speeds, handle starting, four lamps, numerous spares, very little used, in perfect condition; expert's examination allowed; £30.—Loch, 31, Charminster Road, Bournemouth.

CHATER-LEA, open frame, 6 h.p. Jap, free engine, variable gear, Palmers, foot brakes, pan seat, coach-built body, spares; exchange 1907-1908 Triumph, or other make; bargain.—81, Dalston Lane, Hackney.

RALEIGHETTE, 3½ h.p. water-cooled Fafnir, two speeds, pedal clutch, spares, Salsbury headlight, in perfect condition; £35, or exchange for Triumph, new condition.—Leacey, London House, Goole.

SCOTLAND.—6 h.p. twin Triette, Osborne four-speed and free engine pulley, starting handle, accumulators, coil, Whittle belt, and two tyres new, do from 4 to 40; trial run.—Braid, Colinsburgh, Fife.

HUMBER, 5 h.p., coach-built, water-cooled, free engine, two-speed gear, wheel steering, foot clutch, handle starting, splendid condition; no reasonable offer refused; owner buying car.—Ward, The Cabin, Walton-on-Thames.

5 h.p. Water-cooled Excelsior Tricar, Oppermann three-speed gear, climb anything, wheel steering, handle starting, very smart, and absolutely in new condition, and thoroughly reliable; £35 10s.—128, High Road, Tottenham.

LATEST 6½ h.p. Humberette, three speeds and reverse, cardan drive, Stepney wheel, lamps, and spare tyres, lovely condition throughout; any trial; sacrifice £60, or £10 and first-class powerful tricar, with three speeds.—R. Else, Leawood, near Matlock.

HOBART Tricar, 4½ h.p. White and Poppe engine, water-cooled head, Phelon and Moore two-speed, Palmer cord tyres, leather apron, carrier, two Powell and Hanmer lamps, in good condition, for motor bike and cash, or sell £35.—Entwistle, 46, Annie Street, Accrington.

MARS Tricar, 4½ h.p. White and Poppe water-cooled engine, pump circulation, two speeds, large foot clutch, bucket seats back and front, nearly new 2½in. Palmers all wheels, chain driven, very fast and reliable; £35; exchange with good motor cycle considered.—Longford, Uddingston.

COACH-BUILT Tricar, front body finished in best style, and in splendid condition, supplied by Chater-Lea, £2 10s., cost £6; also Bozier two-speed gear, complete with levers and clips, for changing gear, also outside bearing, perfect, £2 5s.—Dene Cycle Co., St. Thomas Street, Newcastle-on-Tyne.

ZENITH Open Frame Tricar, 7-8 h.p. twin-cylinder Antoine engine, sprung frame, free engine clutch, Chater-Lea fittings, internal expanding brakes, Clincher tyres (unpunctured), in perfect running order, and nearly new, only run about 200 miles; a bargain, £30, must sell. —Neal, 210, Old Montague Street, Whitechapel, E.

TRICARS FOR SALE.

BARGAIN.—4 h.p. Tricar, M.O.V., chain drive, climb anything, 26in. plated wheels; £18, or offers.—186, Derby Street, Bolton.

WOLF Tricar, 6 h.p., twin-cylinder, good as new; £23 10s.; no offers; no exchange.—Harris, 22, Bayes Street, Kettering.

RILEY, 4½ h.p., w.c., two speeds, coach-built seat, running order; must sell; £25.—Brice, Brigstock Road, Thornton Heath.

2¾ h.p. Fairy Lightweight Motor Bi-cycle, two cylinders, perfect condition; £17 10s.—Willway and Sons, Ltd., St. Augustine's, Bristol.

10 h.p. Rexette, seats three, little used; any trial; £45, or best offer; small tricar or motor cycle part exchange.—2, Norwood Grove, Southport.

EXCELSIOR, 3½ h.p., detachable forecar, and spare front wheel, complete, guaranteed perfect; any trial; £16.—C. Rumens, Dones, Cranbrook.

4¼ h.p. Phœnix-Minerva, coachbuilt, two speeds, free engine, handle starting; £27 10s.; seen any time; trial given.—L., 44, Abbotts Road, Southall.

4¼ h.p. Phœnix Tricar, in perfect condition, good climber, two speeds, free engine, starting handle, tyres equal to new; £35.—Stringer, chemist, Kingston-on-Thames.

9 h.p. Singer Tricar, coachbuilt fore-seat, water-cooled engine, three-speed gearbox, perfect condition; £65, cost £150.—Willway and Sons, Ltd., St. Augustine's, Bristol.

5 h.p. Riley Tricar, absolutely new, complete with lamps and spares; would accept good motor cycle in part payment, Riley preferred.—Box No. 9,745, *The Motor Cycle* Offices, Coventry.

4 h.p. Antoine, Brown-Barlow, wheel steering, bucket seats, passenger behind, like car, 2in. flat belt and chain drive; will drive 100 miles to buyer; £15 10s.—Harris, Motorist, Astwood, Redditch.

CENTURY, 6½ h.p. w.c. Aster engine, improved two-speed gear, free engine, open frame, wheel steering, perfect condition; any trial; real bargain, £40.—Thompson, 57, Victoria Street, Blackburn.

FOR Sale, a 4½ h.p. Lagonda Tricar, with Anglian two-speed gear, tyres and everything equal to new, only wants seeing, or would exchange for good twin; no reasonable offer refused.—Ward, London Road Foundry, Staines.

6 h.p. Fafnir Engined Tricar, water-cooled, Chater-Lea frame, wheel steering, open frame, three speeds and reverse, non-skid back, large petrol capacity, dashboard radiators; £55; condition splendid; any severe trial.—Seen at Wauchope's, 9, Shoe Lane, Fleet Street, London.

WE have a beautiful 8-10 h.p. Rexette, two speeds, open frame, twin-cylinder, water-cooled, seats three, for sale for a customer, brand new 3in. Continental car cover and tube back wheel, two accumulators, horn, perfect; sacrifice £55, or exchange, a bargain.—Maude's, Powell Street, Halifax.

SNAP This Quick.—5 h.p. Riley Tricar, condition as new, guaranteed fully every way, any examination, 50 mile run, hilly country, top speed, with two 12st. passengers, many pounds worth spares, lamps, horn, jack, tools, carriers, bags, plugs, valves included, cost £120; following accessories, brand new, just obtained for coming season, cost of £15, repainting, varnishing, and replating, new Palmer cord tyre driving wheel, Dunlop car size inner tube to same, new Fuller's high speed Syntonic coil, new C.A.V. 20-hour battery, two new valves, new footboards, new Renold's driving chain, engine and gearbox overhauled (nothing required), clutch re-lined, nothing more could be spent to put in perfect order, only been used week-ends; will prove a bargain to anyone; reason for selling decided on car; lowest price £60; no offers or exchanges; bring the money, have a trial run, and take it home with you.—Tricar, 49, Cawdor Street, Stockton Heath, Warrington, near Manchester.

Mirror Lens Projector Headlight

25/- plated

Fitted with electric bulb 2/6 extra.

Or complete with generator, 35/- each.

Easter is now over. Perhaps your Motor Cycle did not satisfy you during your Holidays?

We will undertake to put same into perfect order without keeping it for weeks.

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56, Northumberland Street, NEWCASTLE-ON-TYNE.

TRICARS FOR SALE.

REAL Bargain.—Sociable Tricar, 7 h.p., water-cooled twin Fafnir, three speeds and reverse, wheel steering, bucket seats, expanding brakes in front wheel, 700 by 80 Dunlop tyres on front wheel, 700 by 85 Dunlop steel non-skid for back, complete with lamps, pump, jack, spare tube, and tools; £65; any trial.—H. Lyons, Jeweller, Frogmore Street, Abergavenny.

SIDECARS AND FORECARS.

SIDECAR, fit any machine, 26 by 2½ Dunlop; £2 10s.—Nightingale, Hazeldene, Crawley.

KERRY Forecar, 3½ h.p., Clinchers; £22, warranted; exchange.—Ford, Epping Green, Essex.

MILLFORD Rigid Sidecar, with apron; £4 4s. — 48, Station Road, Manor Park, Essex.

MONTGOMERY Sidecar; £4 10s.; good condition.—Gus, 188, Westbourne Grove, Bayswater.

LIBERTY Sidecar, cane, adjustable, 26in. or 28in.; £4 15s.—4, Bonheur Road, Bedford Park, W.

BAT Sidecar, suit Bat machines, rigid type, excellent condition; £4 10s.—137, St. Giles' Road, Derby.

MONTGOMERY Sidecar, new 1908, latest pattern; cost £10 10s., accept £8.—116, Colworth Road, Leytonstone.

CHATER-LEA Sidecars (complete), built to order; £9 10s.—Terry, 9, Hampton Street, Walworth, London, S.E.

MONTGOMERY Sidecar, good condition, compensating joints.—Botwood and Egerton's Motor Garage, Newmarket.

MOTOR Sidecar, guaranteed climb 1 in 5 two up, De Dion, two speeds; photo; £32 10s.—Slaughter, Weston-super-Mare.

MONTGOMERY Sidecar, excellent condition, 28in. wheels, upholstered red; £4 15s.—Vowler, 10, Camden Avenue, Feltham.

NEARLY New Montgomery Sidecar, compensating joints, Palmer cord; £5 10s., or close offer.—46, Rectory Lane, Tooting.

MILLS-FULFORD Forecarriage, wicker chair, upholstered, strong, used very little; £6.—Walton, builder, Crook, Durham.

FORECAR Attachment (Phœnix), strong, coach-built, band brakes, good condition; £4 10s., or offer.—Dr. Gervis, Seaford, Sussex.

5 h.p. Twin Kerry, 1907, cane forecar, perfect condition; any trial; spring frame; price £33.—Ell, 181b, Queen Victoria Street, E.C.

MONTGOMERY Sidecar, new, latest art cane, non-skid, 26in. by 2½in., plated springs; £8, cost £11.—McCulloch, Parr Cottage, St. Helens.

FORECAR, coach-built, with N.S.U. 5 h.p. twin, magneto and fan, bicycle 1907 model; £49, or nearest offer.—Milne, Charlwood, Babbacombe.

SIDECAR, splendid condition, fit any frame, 26in. wheel, motor tyre, only wants seeing; sacrifice £4 15s.—G. Judd, 123, Holloway Road, London, N.

MILLFORD Forecarriage, side stays, band brakes, Clinchers, good condition, £5; another, same pattern, nearly new, £7 10s.—Wallis, grocer, Hill Road, Cambridge.

£4 10s.—Wolf forecar, in good condition, very large, comfortable seat, dark green art cane, Palmer tyres, perfect, Bowden band brakes, side arms. — 218, Lindon Road, Sheffield.

MONTGOMERY Sidecar, 26in. wheel, right side, extra luggage basket, heavy tyre, suit Quadrant, practically new, used once; sacrifice 7 guineas, cost nearly double.—138, City Road, Cardiff.

WE Have plenty of sidecars in stock new at £5; also a few £10 ones to clear at £6 10s., new, only while they last.—Oakleigh Motors, Ltd., inventors and originators of the sidecar, West Dulwich.

EXCHANGE.

PIANO Player and Music for 1907 motor cycle, or tricar.—45, Parade, Leamington.

WANTED, good piano; exchange 3½ h.p. Rex, value £16.—Mander, Astwood, Redditch.

4 Volt 2½ Amp. Dynamo and Camera; exchange push bicycle.—A. Rawson, Whittlesea, Cambs.

3 h.p. M.M.C., low build, good order; £6; exchange.—Write, 10, Speedwell Street, Deptford, S.E.

EXCHANGE my motor trailer, perfect condition, for gent's push bicycle. —Masterson, Rathdowney.

5½ h.p. Orleans, two-seater car; exchange motor cycle or tricar.—98, Potternewton Lane, Leeds.

EXCHANGE Montgomery sidecar for good push bike, or sell £4 10s.—Gus, 188, Westbourne Grove, Bayswater.

LADY-BACK Tandem, low-built, Chater-Lea, for motor cycle, or sell £8 10s.—H.S., 33, St. Stephen's Road, Bow, E.

2¾ h.p. F.N., carburetter, new pulley and cam fitted, for good cycle and cash.—Maden, 58, Rochdale Road, Bacup.

4 h.p. Imperi, Longuemare, Dunlops, low, fine condition, for low 2½ h.p.; no rubbish.—35, St. Stephen's Road, Bow, London.

4IN. Screw-cutting Lathe, gap, treadle, complete, nearly new; exchange for good motor cycle, or sell £14 10s.—76, Bedford Hill, Balham.

EXCHANGE 5-6 h.p. Quadrant tricar, in good condition, for 5-6 h.p. twin bike, or sell cheap.—James, Wotton-under-Edge, Gloucestershire.

EXCHANGE Gold Watch and Chain, value £16, for 3½ h.p., magneto, good make, cash adjustment.—Parmley, Keppel Street, South Shields.

EXCHANGE Drum Tyre Case, leather and canvas, quite new, for carburetter, 3½-4½ h.p., or accessories.—Cockerill, 213, Harvist Road, Kilburn.

EXCHANGE Lathe, 7ft. bed, 7½in. centre, back geared, slide rest, etc., overhead motion, for good motor cycle. —Nicholson, caravan builder, Worksop.

BAT Tricar, 4 h.p., sprung frame, good order, sell £20, or exchange for twin bike; 3 h.p. Humber tricar, good order, special tyres, £20.—Timmons, Mansfield.

EXCHANGE 3 h.p. Humber, clutch, hand starting, exceptionally fine condition, for lower power, or sell best over £9; no cards.—R. Barnes, Kingsclere, Newbury.

REQUIRED, higher power in exchange for 1¾ h.p. Minerva cycle, lantern with 100 slides, and new half-plate outfit, good quality.—No. 9,740, *The Motor Cycle* Offices, Coventry.

WANTED, gold watch and chain, in exchange for my Chater-Lea-Minerva, perfect running order; expert values at £18; any offers?—C.B., 243, Bath Road, Hounslow.

EXCHANGE Brand New 3½ h.p. Camber-Peugeot motor cycle, not used, for 4-6 h.p. tricar, water-cooled, recent make, cash adjustment if necessary.—73, Church Street, Camberwell, S.E.

EXCHANGE 18ct. Solid Gold Lever Watch and 9ct. solid albert for 3½ to 4½ h.p. motor cycle, low frame; approval, deposit.—Apply, A.E.J., 9,735, *The Motor Cycle* Offices, Coventry.

EXCHANGE 6 h.p. water-cooled open frame tricar, two speeds, sprung back and front, pressed steel frame, for Rex Litette, or offers.—Barker, 127, Salisbury Avenue, Westcliff-on-Sea.

TWIN Model De Luxe, magneto, perfect, late model, would exchange for small car, or high powered wheel steering tricar, cash adjustment.—De Luxe, 27, West End, Terrace, Wibsey.

EXCHANGE for good motor cycle or tricar, new furniture, any description, direct from the works, valued wholesale; exceptional opportunity.—Furniture Manufacturer, 7-9, French Place, Shoreditch, London.

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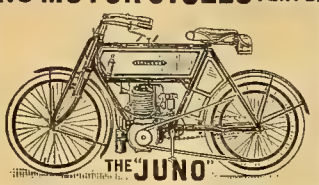

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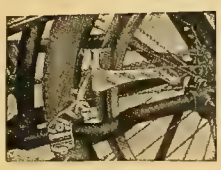

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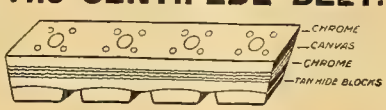

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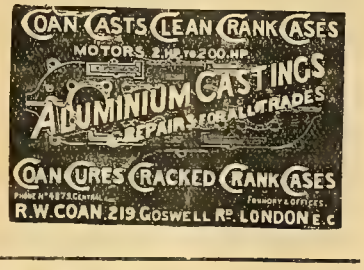
1/6, ¾ 1/9, ⅞ 2/-, 1 2/3, 1½ 2/6.

W. POLLIN, Belt Maker, **Spalding.**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Black Buffalo Horn Handle, 2/6 per pair post free, with solution for fixing. Give size of handle-bar. Trade terms on application. **HILL BROS.**, 32, Broom Close, Sheffield.

EXCHANGE.

36 Volumes Complete Encyclopædia Britannica, 9th edition, morocco bound, cost £101, for good magneto motor cycle, new condition, or sell £40.—L2,165, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

2¾ h.p. Minerva, mechanical valves, Bowden lift, splendid order throughout (complete), numerous sundries, for three-speed gent's push bike and cash; offers.—Burr, West Wycombe Road, Wycombe.

15 h.p. Mors, has been dismantled, thoroughly overhauled, and reassembled, tyres in splendid condition, with spares, lamps, and tools; would exchange for smaller car, Provident bond, or consider offer; price £200.—Motor, 33, Acre Lane, Brixton.

MINERVAS.—2¾ h.p., £29; 3½ h.p., £32; 4½ h.p., £39; 7-8 h.p., £45; spring forks 50s. extra; £20 allowed on any approved twin Rex; £15 on any 1906 single; £19 on 3½ h.p. 1907 Minerva, or £25 on 4½ h.p. twin.—Maude's, Powell Street, Halifax. Telephone, 433.

LIFE is a Worry, Motor Cycling a fag, and Repairing a Nuisance.—Why not send along that old motor of yours for a respectable machine, a twin Rex or a 1908 Minerva. Definite quotations per return. Delivery from stock. —Maude's, Powell Street, Halifax.

EXCHANGE Tropical Sanderson, Goerz lens, Sector shutter, and half-plate Thornton-Pickard focal plane, Zeiss lens (these cost £32 last year), also lantern and slides; exchange for 5 h.p. bike (magneto), with or without sidecar; trial and examination.—J.D., 608, High Road, Leytonstone.

OPEN Frame Tricar, 4 h.p., Trent engine, Wipple two speeds and free engine, wheel steering, bucket seat back, wicker forecar, newly upholstered, and new apron, guaranteed in perfect order and condition; exchange good 3½ h.p. single and cash. — 21, Worthing Street, Hull.

MINERVA Throughout, 3½ h.p., spring forks, 26 by 2½ tyres (unpunctured), Brooks non-skid back, luxuriously fitted, all spares, no expense, new condition, and 8 by 4 billiard table (ivory crystalite), pyramids, pool, skittles, new condition, for Rex de Luxe, or Roc, cash adjustment. — Particulars from M., 238, Boulevard, Hull.

WANTED.

BELT wanted, Watawata, ¾in., 8ft. 6in. —Walker, 8, Sloane Street, London.

WANTED, Front Seat for tricar.—142, Lewisham High Road, New Cross, S.E.

WANTED, good 2 h.p. and cash for 2¾ h.p. F.N., or sell £16.—B. Morris, Bourne.

WANTED, good Motor Cycle, cheap for cash.—Rey, 5, Heath Street, Hampstead.

TWIN V Engine wanted, cheap, for cash.—Johnston, 26, New Street, Kennington.

RACECOURSE Garage, Doncaster, wants to purchase modern motor cycles for spot cash.

WANTED, motor cycles, for spot cash, any condition.—Spencer, 78, Steyne Road, Acton.

WANTED, pair band brakes, for small tricar. — Agars, Bradshawgate, Leigh, Lancs.

MOTOR Cycle Wanted, also engine, cheap.—Ralph, 19, Healey Street, London, N.W.

WANTED, a few heavy beaded covers for 26 by 2½ rims.—10, Grove Place, Hampstead, N.W.

COACHBUILT Forecar or Sidecar body wanted, good accumulator, etc. — Morley, Reading.

WANTED, several covers, 26 by 2, beaded and wired. — J. Kerry, Downham Market.

WANTED, 1907 Motor Cycle, good make; lowest cash.—128, High Road, Tottenham.

WANTED.

WANTED, good Twin Engine, carburetter, two-speed gear, etc.—128, High Road, Tottenham.

WANTED, 6 h.p. twin, long, low, sound condition.—F., 11, Eglantine Road, Wandsworth.

WANTED, motor cycle, in exchange for dynamo, 110 volts 20 amps., or offers.—Tilney, Abertillery.

WANTED, Barnes runabout; must be cheap.—Full particulars and photo, 35, Cherry Street, Coventry.

WE Purchase Motor Cycles for cash; exchanges entertained. — Motors, 26, Offerton Lane, Stockport.

MAGNETO, for 3 h.p., in or out of order; cheap.—Pearson, School Road, Moseley, Birmingham.

SCRAP Heap.—Old 1¾ h.p. Front Drive Werner cylinder head wanted.—19, Strafford Road, High Barnet.

WANTED, 1903 3 h.p. Rex cylinder; must be cheap. — D. Knowles, 98, Russell Street, Peterborough.

MOTOR Cycle Wanted, 1907, 3½ or 4½ h.p., low built, guaranteed.—Particulars, 12, Cottenham Road, Holloway, N.

TRICAR wanted, three-seated, Riley preferred, modern. — Sykes, School Terrace, Slaithwaite, Huddersfield.

SMALL High Tension Magneto, new or second-hand, also belt, ⅝in., little used.—69, Hill Rise, Richmond, Surrey.

WANTED, motor cycle; exchange upright grand piano.—No. L2,074, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

SIMMS-BOSCH H.T. magneto, single-cylinder, good condition.—Ferguson, 10, Hillside Street, Springburn, Glasgow.

HIGH Speed B. and M. trembler coil, 15s. 6d., cost 27s.; non-trembler, 10s., new.—2, Jordan's Yard, Cambridge.

WANTED, Magneto Motor Cycle, Triumph preferred; cheap, cash. — Browner, 18, Newstead Road, Liverpool.

WANTED, Longuemare carburetter, model H., complete, 3½-4½ h.p.; approval.—Daines, Harmer Street, Gravesend.

COVER and Tube, second-hand, 26in. by 2in., wired, standard make, new condition; cheap.—13, Baythorne Street, Bow

TRY the Rüsel Cast Iron Headed Valves, never need grinding; 3s. 6d., any size.—Broadhurst, 13, Stafford Street, Leicester.

WANTED, Address of makers of motor cycle frames, to specification. — Apply, No. 9,749, *The Motor Cycle* Offices, Coventry.

WANTED, motor cycle or tricar; exchange new 55 guinea upright grand piano.—9,756, *The Motor Cycle* Offices, Coventry.

MOTOSACOCHE Attachment, for ordinary 22in. cycle, wanted; typewriter part exchange. — Church, Cross Street, Sandown.

WANTED, motor cycle, 3½ h.p., low; exchange new Chater racer and £6.—Goldwasser, 25, Southampton Street, Pentonville.

TRICAR Wanted, in exchange for high-class typewriter, which cost £22.—Apply, Barlock, Bowes Road School, New Southgate.

WANTED, Chater-Lea girder forks and wheel, with or without tyre, 26in. by 2in.; cheap.—Wallis, 29, Hills Road, Cambridge.

WANTED, part or whole second-hand gear, for 5½ h.p. Oldsmobile, cheap, in good condition. — Green, The Ham, Brentford.

WANTED, for cash, new 2 h.p. engine, with carburetter and silencer, also large brazing lamp.—Hodgson and Co., Abergavenny.

WANTED, good twin engine, also carburetter, silencers, belt, saddle, tyres, and any other parts, for motor cycle. — J. Neighbour, Walworth Road, S.E.

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'Tee Bee' Spring Seat Pillar suits machines with fixed seat pillars, Price 12/6

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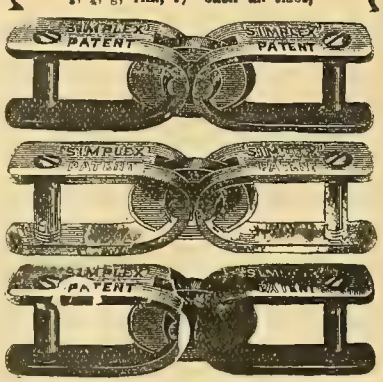

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CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card.—Address, "The Cycle and Motor Trades' Review" Offices, Coventry.

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BROOKLANDS—AN IMPRESSION OF SPEED.

THE MOTOR CYCLE

SPRING NUMBER

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THE TROUBLES OF A NOVICE.

By S.B.S.

N company with a good many other motor cyclists, I graduated from two wheels to three during last summer, and my first three-wheeler was a second-hand 5½ h.p. two-speeder of uncertain age, and, this account will show, of more than uncertain nper. It had been in my possession for some weeks fore I was able to get a decent run on it, but at st opportunity came for a ride to Chester, and in mpany with a friend known to his intimates as Pop," who rode a 2¾ h.p. Excelsior, I left rthampton at 6 o'clock one fine morning.

Fate's ironies were manifest at the very outset. We re actually ready to start at 5 a.m., but as a few xious relatives and friends thoughtfully desired to sh us good-bye we delayed our start till their arrival, hich was at 6 a.m. "What is an hour more or less," oth "Pop," "when you travel by motor?" The quel replied that an hour more or less was of small count indeed, for half an hour after noon we were lt forty miles away, having maintained the noble erage of 7.58 miles an hour. First the petrol pipe oke, and laid the dust at a cost of 1s. 4d. per square d. Then an awful rasp from the gear box saluted r ears, and it jammed up hopelessly, causing the ked back wheel to skid the machine across the road a most alarming fashion.

This was rather a test for a novice, but we filed an ra notch in the gear quadrant, and when the lever s in this third notch the top gear was well jammed and the pinions would revolve. By the way, that ch took two solid hours to cut. Then the camshaft the bicycle broke clean in half.

The tricar towed the bicycle till the gear box jammed once more, and "Pop" came an unholy cropper off the saddle in consequence of an abrupt stop. Waggling the gear lever freed the gears. We reached a garage, made a new camshaft for the bicycle, and went on.

We Finally Resorted to Towing.

Then the tricar gears seized again, and it was the bicycle's turn to tow the tricar, luggage and all, into Tamworth. Here we took the entire tricar to pieces, and cleared the broken parts out of the gear box (four hours' work for three men). By this time it was 10.30 p.m., and we had our first meal since 5.30 a.m. —a meal as famous in the annals of that hotel as the breakfast with which the waiter assisted David Copperfield was famous in the annals of another inn. We found the tricar gear box required several new parts, and early next day we loaded both of ourselves on to the Excelsior, and went over to Coventry for them. Seven miles out from Tamworth a storm came on, and, lest we should timidly seek shelter, the back tyre promptly burst! We had no solution, but we had an ancient butt-ended tube. For hours we laboured to make it airtight, but never induced it to bear the weight of two of us. Finally, "Pop" went on to Coventry solus for the spares, while I set out to walk back seven miles to Tamworth, being assisted by a lift from a passing car for part of the way.

At 9.30 next morning work was resumed on the tricar. The mainshaft was wrenched away from the flywheel, and all the pinions were either burred or stripped. We laboured till 11.10 p.m., with only

The Troubles of a Novice.—

n hour off for lunch at mid-day, and at that hour was pronounced ready for the road.

Troubles Innumerable were our lot.

At 8.30 next morning we tackled the remaining eighty miles which still separated us from Chester. At 8.35 the back tyre of the bicycle burst again. "Pop" walked back and bought a new tube, so that by 9.30 we were really off. The tricar control puzzled me not a little, for the more I advanced the spark the slower it went. This was finally traced to an inverted connection to the spark lever, and as soon remedied. It then refused to climb any hills—then the silencer fell off, and before we had made any headway it was half past one. The adjustments which here delayed us were so successful that the next section was covered in flying style; but, unfortunately, we had taken a wrong turn, and each of these speedy miles spelt so far out of our true course. We got right, and passed through Lichfield and Rugeley, reaching Sandon by 3 p.m., where a long stop for overheating held us up, and incidentally afforded a chance for a meal. All through this nightmare of a ride I never dared stop while the engine kept running, for only heaven knew whether if once stopped it would ever start again. This caution was confirmed at Stone; as we entered the town, the church clock registered 4.45, and ere we got the engine going again after a distinctly involuntary stop, it registered 6.45. At last it suddenly started, rushed 300 yards, and stopped again dead, what time the cheering of the crowd was still audible in the rear. However, it now revealed the trouble. The collar had split off the inlet pipe where it joined the engine; the nut hid the damage, and so I had been unaware I was getting pure air into the cylinder. A length of inner tube plus some copper wire fixed this up, and the tricar maintained a glorious dash—wrong road again. We drove painfully back to Stone. Driving fast after this delay melted the improvised inlet union just at the bottom of a terrific hill. It was pitch dark, we were worn out, had scarcely tasted food, and had still forty miles to go, while we knew our expectant relatives at Chester would be consumed with anxiety. We got the union hitched up again, and had a fine run at high speed for miles till the road petered out in a ploughed field—lost again. We retraced our steps, and presently came to three road ends destitute of signposts; however, a sleepy rustic directed us. A lot of climbing faced us, and the tricar engine got red hot. Then came a long down grade down which I coasted with the engine switched off. Switching on at the foot of the next long rise, the engine refused to fire. Investigation proved that this time the petrol pipe had come adrift, and not a drop of spirit was left. It was now 10 p.m., and though I had travelled many miles, only ten of them were in the right direction. "Pop" was missing—heaven knew where. I had no map, no idea where I was, no sign of a house or a human being, and the tricar was stolidly immovable!

A New Method of Control.

Suddenly over the hedge came a voice, "Can I help you?" I surlily ridiculed the idea, but for once luck was in. The voice belonged to a motorist, who had petrol close at hand—nay, more, he was an experienced owner of a duplicate tricar the very spit of my own. He played the part of an angel—fed us, mended my pipe, and gave us petrol, for "Pop" ha by now reappeared. There were thirty miles to g and both my petrol pipe and inlet pipe were secure with copper wire and indiarubber, but the knowledg of our relatives' natural anxiety gave us heart to pus on into the night. In five miles the inlet pipe wa adrift, and was again mended with aid from a gam keeper, a signalman, and a policeman—jolly cheerin to find a crowd collect in the wee sma' hours, howeve unwelcome they are in broad daylight. Then it bega to freeze; then the carburetter began to fall off eve five miles, as it had sheared the nut at the other en and was only held to the engine by a bit of hose pip Every five miles I tied it on again with string, a *held* it while I drove. On I flitted through the cobb and darksome night, crouched low over the whe steering with one hand, holding the carburetter on wi the other, and slowing down when necessary by t simple expedient of dropping the carburetter—a fo of control that ensures quick stoppages in a emergency!

In Tarporley my engine seized up, red hot, and fell asleep in the bucket seat while waiting for it cool. "Pop" fell asleep standing up beside n both of us bang in the middle of the road. At 3 a. I woke, and started the engine. Now the bicy refused to go, but finally after much dreamy wrestli in an agony of thick darkness we both got away, a our next stop was outside the front door which was destination. 130 miles in four days!

A Gorgeous Non-stop of Fifty Miles.

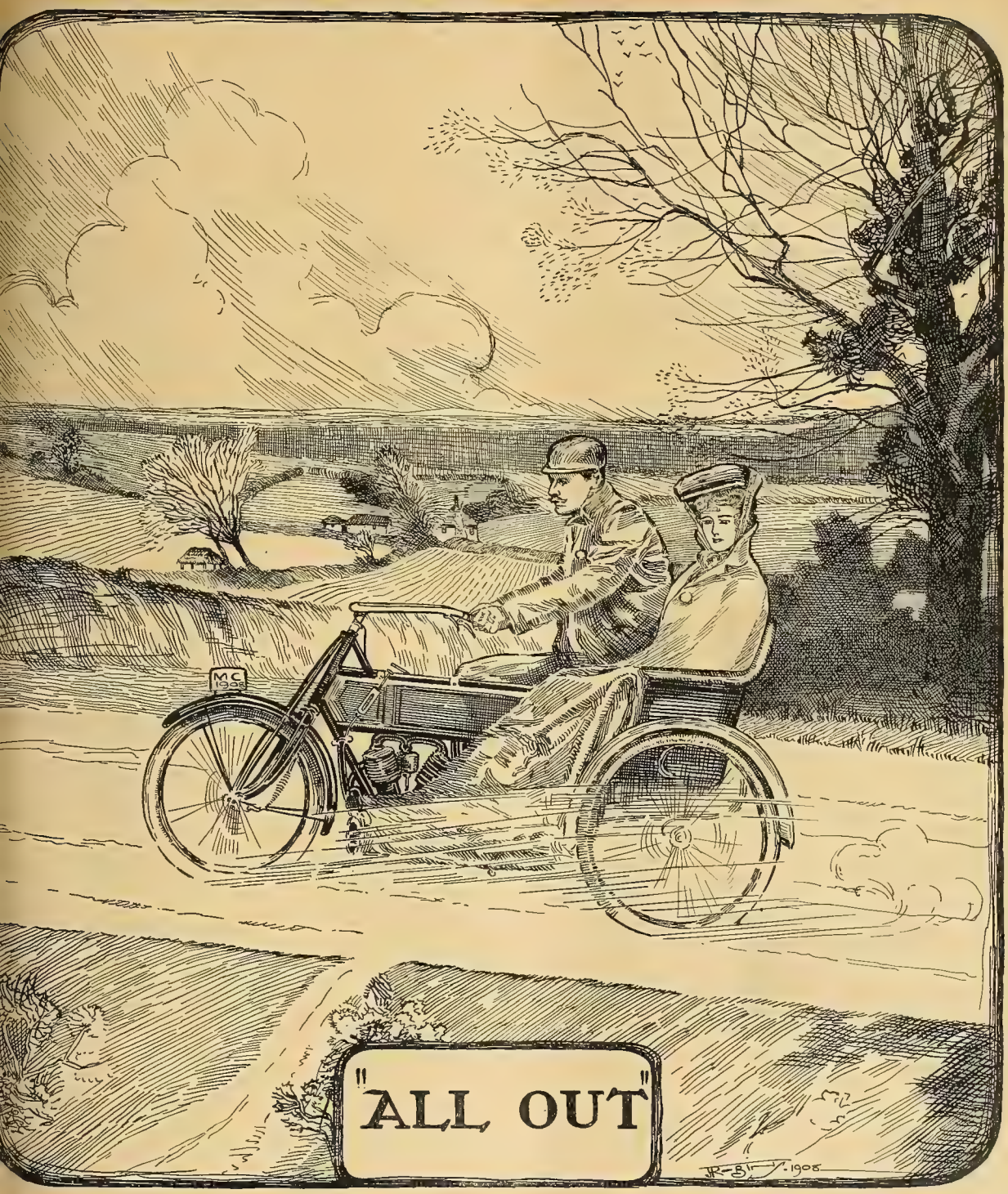
When we had recovered from our exertions we tu up both machines, and a day or two later had a uni gorgeous non-stop of fifty miles apiece. The n night, encouraged by this, be motored to the theatre Birkenhead. When we came out of the theatre neit machine would start. Towards midnight not a solit explosion rewarded our efforts, so we hired a brace bicycles. Some evil fiend was in attendance upon for even those bicycles possessed free-wheels uphill fixed wheels downhill, so we walked much of the back.

Next day we returned to Birkenhead by train, spent the day in vain efforts to make the machine st just catching the last train home at night.

The day after we put new piston rings on the tri and it started—why, I do not profess to know. bicycle still refused to go, so we returned to Che on the tricar, thence back to Northampton by tr

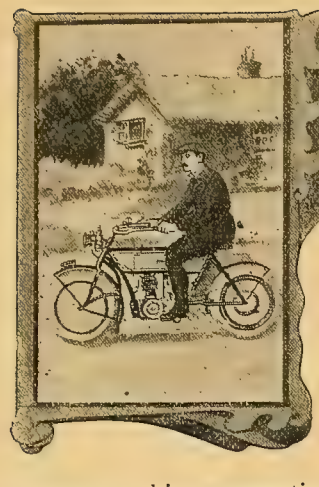
Such mockery greeted us here at our failure to m to Chester and back in the inside of a fortnight we determined we would eventually bring those recalcitrant machines back by road. We chose day, and attempted it. The bicycle had meant been put in running order by a repairer, and "Po drove it from Birkenhead to pick me up at Ches and, including stops, we actually coaxed those motors over the 130 miles in less than twelve hours the amazement of everyone who know them. (D hear a voice say, "Us?")

This tale has a moral: Let not the gentle tyro chase a second-hand tricar without an expert exam tion. And I will conclude with an invitation: If gentleman has a regular wreck of a prehistoric tr which he desires to see coaxed through the End-to- I believe I could get it through, if any man li could.



uld you like to go a-touring in a manner most alluring,
Here and there,
employ your well-earned leisure in obtaining health and pleasure
Everywhere?
uld you care to go a-flitting, on your saddle calmly sitting
At your ease,
ough the lively crowded highways or the lovely leafy byways
As you please?
uld you like to ride serenely, and enjoy the motion keenly
Of your steed,
r hills and crests and ridges, under aqueducts and bridges
At full speed?

If you would, try motor biking; 'twill be greatly to your liking.
'Twill indeed!
. . . . . .
There's no sport that's more beguiling when the sun is softly smiling,
Or ablaze,
For its joys are keen and many, and within the reach of any
Nowadays.
Therefore, if you've never tried it, buy a motor bike and ride it,
We advise,
And your voice you'll soon be raising, and the pastime loudly praising
To the skies.
(A word is quite sufficient to the wise.)



Our Historic Highways.

By REGINALD WELLBYE.

WITHOUT roads—roads, that is, in the modern sense, hard, smooth highways—motor cycling, or, indeed, any kind of cycling or motoring, would be all but impossible. Roads, in fact, are every whit as essential to the practice of the pastime as the vehicle itself, and the subject is therefore of more than passing interest to motor cyclists, even were it a dull one. But dull it most certainly is not, for our highways are in every sense historic, and the rider who to-day so easily mows down the miles along them is moving among associations as rich and as stirring as those which he meets at palace and castle and church. To a generation that knows no other highway but the railway and no travelling carriage but the train, the road seems a thing of small importance—a mere convenience for the tradesman's cart and the farmer's waggon, just a track to connect the town with the scattered hamlets and the solitary houses that lie around. But it was not that the butcher of Dulby might reach Slowcombe, that the farmer of Slowcombe might take his grain to Waterham, that Waterham's miller might sell his flour at Fairborough, or that the lawyer of Fairborough might jog smoothly along to the assizes at Oldchester, that the great roads of England grew up.

For Whom were the Roads Constructed?

The Dulbys, the Slowcombes, the Waterhams, the Fairboroughs, the Oldchesters, and the rest of them are all usurpers. Barely seventy years ago they were mere incidents by the way, and the farmers and the butchers, the millers and the lawyers, who have lorded it so long that they dispute the very right of a traveller from a distance to use the road at all, were then but very small fry indeed. For then, and as it had been for nearly two thousand years, it was the great roads that were the only means of communication from one end of the country to the other—the very nerves and arteries of Britain. The lanes and byways, upon which not a tithe of the trouble has been bestowed as was devoted to the main roads, were, of course, always sacred to local traffic, and when the generation that could remember the busy roadfaring days had died out and when Turnpike Trusts themselves had expired, the prime difference between highways and byways was forgotten, and all roads became byways. The motor cyclist, with the means at his command of transporting himself from one side of the island to the other within the span of a single day, is unconsciously reaffirming the difference, and is rediscovering the old trunk coaching and posting routes abandoned nearly threequarters of a century ago.

New roads have come into existence at most periods, but the majority of highways are very old, the oldest, indeed, vying in age with the most ancient monuments of man in these islands. They were not made, they grew—just as footpaths will grow up to-day acro newly-opened estates. The old roads were, in fact, b footpaths and horse paths that sprang up automatical as the early barbarian inhabitants of primeval Brita made their way across the land over what seemed t easiest ground, and so wore out a beaten track ov down, and through forest, a few feet wide only, whe the soil was firm, but broadening out at soft or bog places into a number of twisting, undefined trac for roadmaking and roadmending were almost unknov arts, nor were they much practised till modern tim Thus did roads come into being two thousand yea ago, and wherever the Saxon planted a village, t Norman a castle or a monastery, the same process to place, as it nearly always did when people required travel in new directions. It was the Roman alone w *made* roads, caused them to be deliberately plann and scientifically constructed—that is, in cont distinction to allowing them merely to grow spontaneously, and pitching down some stones or few pieces of wood when they threatened to beco impassable, which was practically all the attenti highways ever got in the middle ages.

The Romans as Road Makers.

The Romans straightened out such of the old rou as they needed, and laid out others to connect th new camps and colonies. An important Roman ro was a marvellous piece of work. Built up of pounc tile and cement or other hard material, often to seve layers, and surfaced with gravel or flagstones, stood out, a low embankment, some feet above t level of the soil.

A few much weathered lines of bank, and, ra still, vestiges of pavement, still linger here and the but in such rough places that the motor cyclist v not look for them. But though the roadways h mostly gone, the straight lines in which they were l out remain in abundance, for if many Roman ro went over ground where only a Roman would want go, and so fell out of use in after times, a great m were never abandoned. The man who rides from Marble Arch, in London, to Weedon, Northampt shire, hardly for a single mile leaves ground trod by Roman feet, and similarly the straight lengths the roads from Ware to Stilton, and from Linc northwards to the Humber, or Leeming Lane, in Yo shire, and Stone Street and Watling Street, in K betray their imperial builders. Dreary some of th are to the slow-coach who crawls over them inch inch, but to the motor cyclist, who can gulp them do in miles at a time, they are never unwelcome.

ır Historic Highways.—

Such roads are crowded with memories of the old nperial days, when the Romans were masters of the orld and Latin was the speech of Britain. Over iem has passed many a cohort and many an ala of ie invincible Roman army, and such commanders as ulus Plautius, Agricola, and Theodosius have been orne over their even surfaces. Even wearers of the urple were no strangers, the shades of Claudius, Iadrian, and Severus flitting up and down the long nes of Watling Street and Ermine Street and other raight drawn ways.

But a Roman road which is still a highway and ot a ruin has other memories than these, and they are

A Bath Road scene.

emories, too, that cling to other great ways—the roads hich radiate from London to Exeter, to Bristol, to loucester, to Norwich, as well as the well-worn pro-ncial routes from shire to shire. They are haunted, l of them, by a motley crowd—Saxon, Dane, Norman id Englishman, monk, priest, king and noble, erchant and packman, clerk, and burgess and soldier.

The Traffic of By-gone Days.

Muse on such an ancient highway, and one may see lfred, marching at the head of his Saxon levies to eet and vanquish the heathen Danes, or if it is not lfred who treads that particular road, it may be ecket or Wolsey, travelling in such state as befits rinces of the Church; Simon de Montfort, or the oughtful, observant Chaucer returning from Flanders ong the Dover Road, or Richard Crookback riding ut from the Blue Boar at Leicester to his fate at osworth; James I. dawdling down the northern road his English throne, or Jeffries of execrable memory, or Butcher Cumberland, or, indeed, it may be anyone whose name is known in English history, for they all travelled, and travelled often, and the road—the self-same road we hie along in very different fashion to-day—was the only highway.

If the roads are for the most part such as they grew up centuries ago, in appearance and in other respects they owe much to later times. About two hundred years ago their condition was appallingly primitive, and, through the great growth of traffic, and particularly of wheeled vehicles, were probably infinitely worse than they had been in much ruder times. Many of them were only narrow causeways of bumpy stone blocks, just wide enough for horses and pedestrians, surrounded on either side by the natural surface, cut up, uneven, and dusty in summer, quagmires, literally feet deep with slimy mud, in winter. The Norwich road near Wymondham and the Northampton road between Hockliffe and Woburn, for example, were in that condition a hundred and sixty to two hundred years back. Where there was no paved causeway the road was simply made up of stones and mud, and the mending chiefly consisted in adding a few more stones and piling the material up into a steep bank, when it had worn into ruts more than a foot or two deep. Even the worst of modern lanes are good by comparison, and it seems difficult to imagine, say, the speedy Bath Road as ever in so impassable a state, yet that certainly was more or less the condition of English main roads so late as the reign of George II., except within fifty or a hundred miles round London, where they were often better.

(To be continued.)

WHAT IT FEELS LIKE TO BE AN EXPERT.

By S. W. O. LEN HEAD, M.I.C.E., Etc., Etc.

THE best laid plans of M.I.C.E.'s and other men gang aft agley, and, though I have been conscious these many years of the fact that I am a motor cycle expert, I little expected ever to be commanded by an editor to blow my own hooter in public, though I did once get fined a fiver at Esher for *not* blowing it. What does it feel like to be an expert? I imagine the callow novice supposes us (I will grant for the moment there may conceivably be others besides me)—supposes us, I say—to enjoy unbroken peace and a pleasant sense of mastery when we disport ourselves upon the capricious motor bicycle. Peace I certainly never know. Every post brings me epistles similar to the one faithfully copied below:

"Respeckted sir,—Having purrchased a 1¼ hor. pow. minerva, it bangs mostly in the wrong sillinder. The sillinder it bangs most in is the tin one with holes round it, which falls off evvry now and then. The iron sillinder with gills round it bangs verry infrequent. Being a working man with a large family, I applies to you, and shall be extrornary grateful for your imedat. reply. "Yours respectively,

"——."

Quite a small treatise had to be written in response to this, and was gladly written. But one has less patience with portentously long letters from well-to-do and educated people, enclosing no stamps for a reply, and least patience of all, perhaps, with the correspondent who sends an ideal specification, to which is appended a string of eighteen definite questions; you treat him courteously, and a week later, having digested your strictures, he forwards a new and much longer specification, tagged to which are thirty-six questions. You curtly denounce this new and weighty monstrosity, which probably has eight cylinders, four ignitions, and thirty-two sparking plugs.

A Beautiful Blue Print of a 5 h.p. Twin.

He then flies to the other extreme, and sends you a beautiful blue print of a 5 h.p. twin to scale 63 lbs. all on, and demands where he can obtain an engine for it. Finally, he writes to say he has decided not to go in for motoring until he can afford a 60 h.p. Mercédès. Your holiday tour then takes you into his vicinity, and you ask an acquaintance who this freak may happen to be. Your friend points you out to him—a pupil at the local boarding school, with an exaggerated rump protruding from beneath an Eton jacket—and you realise with curses that he has been beguiling the weary hours of prep. at your expense.

Then there is the correspondent who knows too much. He opens by informing you that he is rather an expert rider, but has at last met his Waterloo. He describes with every appearance of veracity how i trying to cure a misfire he has made every conceivab test—new coil, accumulators, contact breaker, plu wiring, etc. The local repairers have broken the hearts over it, but, considering me to be the Wort Beaumont of motor cycling, he relies on me to resto his departed sleep to him. I sit up two nights, ar evolve magnificent theories of ingeniously intrica causes of misfiring. He bombards me with letter which grow less and less courteous, every two day Finally, there comes a curt postcard to say that wh he tried a new plug he incautiously used an outca from his brother's De Dion car, and that this was t sole cause of his trouble.

Ah, says the novice, but when you experts get on t road! That is when you make good. The practis glance your trained eye casts over the machine in th instant while you are poised in mid-air between grou and saddle infallibly marks down each tiny m adjustment. You never know what it is to cast t wistful glance of immeasurable despair down a coun road untenanted for a mile this way and also th You never know what it is to feel runnels of ma sweat trickling down between your shoulders, droppi from your manly brow into the air vent and diluti the petrol what time you push your heavy tv up some unbelievably lengthy ascent. You aver forty miles an hour, and never pause except for drir or to play the good Samaritan to some unfortun novice in distress.

The Expert's Old Man of the Sea.

Pardon me. The expert's main business is to t every novel device ever invented by the crack-brai fugitives from our lunatic asylums. These devi consist of many things—new tyres, new brakes, r spring forks, new free engines, new carburetters, r ignitions, and new two-speed gears. Inventors v in the degree of their lunacy, but one thing is comn to them all, and that is poverty. No man w enough money to enjoy bread and butter seven day week ever trod the toilsome path of the mechani inventor. Consequently every new idea we ever h to test is mounted upon the most decrepit and rick crock of a motor bicycle that ever strewed a le road. Added to the unspeakable atrocities and v ness of the invention itself are the innumerable po bilities of trouble in the bicycle on which it is moun for test. My very worst experience of the sort was follows: An inventor produced a new free eng clutch, which looked admirable on paper, and w indeed, admirable in design, but oh! so indescriba badly made. It was enshrined in the rear hub.

at It Feels Like to be an Expert.—

s in an urgent hurry when I set out to test that free gine. Eighteen miles from anywhere it seized up, that the rear wheel would not revolve. It was in salad days as an expert, and, knowing the man s poor, I was loth to leave his only machine by e roadside. There was no shed to put it in, and could not be pushed, for the rear wheel was immov-le. Gentle reader, I *carried* that motor bicycle ee miles to a barn.

A Gear of Inadequate Strength.

Or two-speed gears!. No wonder I have a high fore-ad—I am bald with thought, and before I went bald vas grey, though like all real experts I am still in teens. Not so long ago I set out to test a new cyclic rear hub gear. As usual, thirty miles from destination there arose a creaking and a grinding, gnashing of teeth, that were not mine, for they were rrowed, and of steel. No other means of locomotion ng available, I dismantled that hub by the roadside. e final drive of that hub to the wheel itself was from pinion. That pinion was coupled to the wheel by ng mounted so that the edge of its teeth nicked into internally toothed ring. That internally toothed g was 3-32in. thick, and was riveted to the wheel eight footy little rivets about the thickness of a ke apiece. This strong and stable ring and rivets re designed to take the drive of a 6 h.p. engine, and nsmit it to a sidecar and 3ost. of human flesh. The g was about as strong as a crown piece with all cept the milling cut away; the rivets were about as ong as wax vestas. I like to encourage brains, but could not find one single good word to say of that ar, except that the case was stove enamelled. This s quite true—I would not deceive our readers for e world.

Another great enemy of ours is the amateur enthu-st who besieges you with invitations to dinner. After ny refusals you go once, intending to behave so dly that he will never ask you again. The dinner is od, but with four frightfully keen and awesomely norant riders bombarding you with deep mechanical oblems based on impossible data, you get no chance enjoy it. The ladies depart, voting you the dulliest d priggiest chap they ever encountered, which is noying, as you would like to have made a better pression on that little thing in the awfully fetching ue frock. The coffee and cigar stage is inordinately olonged, and before you can escape, you have to etch out on your shirt cuff the bowels of a differential ar and two or three different systems of magneto nition. At last there comes a reluctant departure to e drawing room. Joy—there is an empty chair by e little blue girl. You settle deep into it, and do *not* k motors. Up comes your host: "Now I know ttie'll excuse you, old man, but the fact is Robinson's st ridden over on his 1896 Werner, and, as it didn't t up Porlock Hill last time he was down West, he'd frightfully obliged if you'd just take his engine down for him. We should all learn something!" I learn something, too, next day—the exact price of a new dress suit.

The Maker who wants his Wares Boomed.

Then there is the maker who desires you to boom his goods. This is very nice for you if the goods are good—you do the public service, have a good time yourself, and help a deserving man to conquer the prejudices of an incredulous public. But the maker whose goods are really bad is another sworn enemy of mine. His line, perhaps, is belts. He sends you a belt. It breaks, slips, wears shiny, slips, etc., etc. He writes for a report. You reply that the belt covered 180 miles on a 3 h.p. before collapsing. His response is an indignant four folio letter, explaining that young Jones "went through the Edinburgh run on my belts." So young Jones did—he went through the belts, too (four of them), but it is inadvisable to say so. So the maker sends you a sample of his latest pattern. You hang that peacefully up in your stable till it grows mouldy—it comes in handily for chastising youthful trespassers on occasion. In the autumn the maker writes again. You reply, "I have used your belt for eight months, and it is as good as new." He publishes this in his advertisements, and all is peace between you.

Another of my foes is the small and struggling maker. He sends you an entire machine to test. You ride it once, and it is rotten bad. Presently he grows impatient. Why have you not dilated on its merits in the press? You respond by publishing an abridged specification, concluding with one or two mildly defamatory remarks. He writes to say your critique is not enthusiastic enough to please him. You reply that naturally it is not, for it is true. And then he suborns urchins to sprinkle the roadway around your front door with tin tacks.

No! The poor expert enjoys few moments of his motor cycling existence. His real joy comes late in the season. He has tested the numberless atrocities various makers have forwarded, and his season's work is over. He has snatched time for a brief tour on his good old Triumph or Vindec or what not, and is travelling incog. in the fastnesses of Devon or Scotland. He has done his 200 miles non-stop since breakfast, and is lolling, with an ancient briar, in the lounge of a decent hotel, while a couple of young and verdant motor cyclists are regaling him with the marvellous performances of their own mounts, and telling him what an uninstructed juggins he is to ride the particular make he does.

The Percy Cycle Co., Ltd., 56, Northumberland reet, Newcastle-on-Tyne, send us a copy of their talogue of motor cycle accessories. In addition to ing sole factors in the North of England for N.S.U. otor cycles, they are sole agents for Triumph motor cycles and Riley tricars. The list sent comprises acetylene lamps, belts, fasteners, horns, goggles, stands, and carriers, and the N.S.U. two-speed gear and free engine. Also the Mabon free engine clutch and the Advance adjustable pulley.

Being the opinions of medical men who are actual users of motor bicycles or tricars.

So many doctors are motor cyclists, and partly to refute the statements one occasionally hears that motor cycling does not promote health, we asked medical readers of *The Motor Cycle* to be good enough to give terse answers to the four following questions:

(1) Your opinion of motor cycling as a healthy pastime.
(2) The utility of the motor cycle in your professional duties.
(3) The cost of motor cycling compared with any other method of locomotion of which you may have experience.
(4) Your opinion of the most suitable type of motor cycle for doctors' use.

The replies printed below should prove once for all the outstanding advantages of the motor cycle, not only from a pleasure but a health point of view. We take this opportunity of publicly thanking medical readers who have co-operated in this feature. Addresses have been withheld for obvious reasons.

Cunningham, M.B.

(1.) I consider motor cycling a healthy pastime. (2.) It is decidedly useful to me in my professional duties. (3.) Its cost is less than any other method of locomotion, with the exception of the push bicycle, which is a very poor locomotive when going uphill. (4.) In my opinion two types of motor bicycle are suitable for a doctor—either a lightweight machine or a heavyweight with free engine and two-speed gear.

D. V. Haig, M.D.

I consider motor cycling a most healthy and invigorating pastime, without any drawbacks from the hygienic point of view. I find my motor bicycle very useful in professional work, except in really bad weather, and the cost is less than that of any other method of locomotion except walking and pedal cycling. My machine (3½ h.p. Triumph) is reliable, comfortable, and perfectly easy to manage in traffic, but my ideal mount would have a light and reliable two-speed and free engine gear.

R. W. H. Meredith.

Motor cycling is undoubtedly a very healthy pastime, enabling those whose occupation is sedentary to get plenty of fresh air and varied scenery in a short time. It is certainly helpful in insomnia. In my professional work it is invaluable, enabling me to complete a longer round in a shorter time, and of course sometimes its speed is of the greatest importance. I have kept no detailed account of its cost, but it is small, and would be much less if I had more time and it was cleaner work making adjustments and small repairs. My present cycle—my fourth—is a 3½ h.p. Phelon and Moore, and I know none better or more suitable. The two-speed gear is very useful in this hilly district (Wellington, Som.). I have just completed 5,000 miles without trouble, even with the chains.

R. C. Macdonald, M.D., M.B., C.M., L.R.C.S. Edin.

(1.) As a healthy pastime is very difficult to beat, it is a fine tonic, braces the nervous system, improves the general health, and moreover is a charming hobby. One gets as fond of one's motor cycle as in the old days of the horse. (2.) To a country doctor it is invaluable. For the last two years I have done daily runs of from twenty-five to 200 miles, and never had to walk home; in fact, the work of two horses and occasional train journeys is done in less time—one has thus more leisure. As to expense, I buy a new machine every twelve months, and reckon it about the same as one horse, say £50 a year, depreciation £25, and new tyres perhaps before necessary to avoid tyre trouble. This for a matter of, say, 6,000 to 8,000 miles a year. (3.) The most suitable machine is a single-cylindered one of 3½ h.p., with a two-speed gear and free engine. My ideal is one that can be started with a kick of the pedal (this is easier than hand starting) whilst striding the machine, then let in your clutch and glide away. I am

Dr. R. C. Macdonald.

waiting for this combination to be fitted to my favourite Triumph, and will then never want anything else. I have ridden the Triumph for two years, and have reluctantly ordered a Phelon and Moore for the above reasons, viz., you have to pay a visit half-way up a steep hill how are you to get to the top? Pushing and vaulting on do not suit a heavy weight.

Godfrey H. Bedford, L.M.S., L.S.A. Lond.

To the busy medical man a medium weight two-speed 3½ h.p. motor cycle with magneto ignition is invaluable, saving an immense amount of time when visiting one's patients. I consider a ride into the delightful country lanes of Old England on a motor cycle very healthy and invigorating, and well calculated to remove traces of brain fatigue, and refresh both mind and body. As to the cost, it is far cheaper than any other means of locomotion that I know of.

C. B. Moss-Blundell.

(1.) I see no reason to assume that motor cycling is in any way prejudicial to health, provided suitable clothing, goggles, etc., are worn. A motor cycle, especially in the country, is invaluable. (3.) Cost about one-third of a penny per mile on a twenty mile per day average, against 2½d. for a small 6 h.p. car, and 4d. for 10 h.p. car, licenses, insurance, etc., included. (4.) A doctor's machine must be essentially a "no trouble" machine, and of sufficient power and durability to take him anywhere in all weathers. My ideal machine, which I had built to my own specification, is a 3½ h.p. Zedel, adjustable pulley, gear 5 and 4 to 1, 20in. frame, 52½in. wheel base, spring forks, magneto ignition, pedal gear, rubber belt, two lamps (one gas and one oil), 4in. mudguards, step, carrier and strong footrests, which are essential for leaning the machine against a kerb, and 2¼in. tyres.

Motor Cycling for Health.—

T. W. L. Beales, M.R.C.S. Eng., L.R.C.P. Lond.

Having used a motor cycle for seven years in my practice during the summer months, my opinion is that it is a most exhilarating and healthy pastime, and it has been the most useful as well as the most economical

Dr. T. W. L. Beales.

means of getting about in my professional work, averaging about 1s. 6d. per 100 miles for upkeep. Undoubtedly the most suitable type of motor cycle for a medical man is the lightweight, with not more than 2½ h.p. engine, and weight from 80 to 120 lbs., owing to the frequent mounting and dismounting which must occur in visiting patients. At present I am using a 2½ h.p. Ariel in the summer months, and a 6 h.p. Rover car in winter, both of which are eminently satisfactory. I have dispensed with horses entirely.

D. R. G. Corrigan.

I have no doubt whatever that for myself motor cycling is a healthy pastime. I mean to stick to it. For most people, however, the machine used should be of modern type, so as to eliminate that form of hard labour playfully alluded to in your valuable paper as L.P.A. Motor cycling is the cheapest form of locomotion I know of where any considerable distance has to be covered. In fine weather the up-to-date motor cycle leaves nothing to be desired as a vehicle for country doctor's use. I think the all-weather motor cycle for town or country work has yet to come—and will come.

P Burrow, M.D., B.S.

(1.) In moderation a general tonic, stimulating the respiratory, circulatory, and nervous systems, promoting sleep, and increasing the appetite. (2.) For country practice motor cycling is the handiest, cheapest, and quickest method of locomotion I know of. During the last five years I have saved an average of two hours a day by using my motor cycle. Objections—difficulty in keeping neat, dust, mud, and skidding. (3.) I find cost per year one-quarter that of horse, trap, and man. (4.) For hard country work a heavy 3½ h.p., magneto, two-speed and free engine, rubber belt, footboards, convertible to three wheels in the winter.

H. Weigall, M.B., Ch.B. Mebl.

(1.) Motor cycling is a healthy pastime, inasmuch as it encourages people to go into the open air and away from towns, the absence of exercise being its greatest drawback. I think it a pity that pedalling gear is being so much discarded. (2.) It is of great value from a professional point of view. (3.) Much the cheaper form of rapid transit. (4.) An easy starting, silent, well sprung, absolutely reliable machine, fitted with studded tyres and efficient mudguards.

P. M. Moore, L.R.C.P. and S.

I think motor cycling is a most healthy and exhilarating pastime. I find it most useful in my professional duties. Most of my calls are three to nine miles away, and I find I can get about in one-third the time I could by any other method of locomotion. With a non-skid back tyre I am independent of roads and weather, and in two years experience have not yet had to walk home, though sometimes held up on the road. Motor cycling is far less expensive than making use of horse and trap. I think the most suitable type is 2¾ or 3½ h.p., single gear. My mount is a 3½ h.p. Brown.

Claude A. P. Truman.

(1.) Have you ever met a seedy-looking motor cyclist? (2.) For far-distant visits it is admirable, otherwise I prefer a push bicycle. (3.) My other experience is chiefly with a push bicycle, which is, of course, incomparably cheaper. (4.) The only motor cycle which I have been able really to use in all weathers and over all roads was a 4 h.p. Aster with Bozier gear. This was, without the shadow of a doubt, at once the most substantial and practical motor cycle I have ever had. In conclusion, the sturdiest engine I have ever had was this 4 h.p. Aster. The most flexible and kindest was a 9 h.p. single-cylinder Aster. The most lively was a 3 h.p. Fafnir. The most irresistible was a 5 h.p. Antoine, and the most disappointing—well, never mind!

James Monie, M.B., Ch.B.

Experience teaches that riding a high grade motor cycle equipped with spring forks and spring saddle-pillar affords a high degree of pleasure to the user, and is undoubtedly beneficial to his general health. The cycle I consider best suited to a doctor's needs is the well-known and tested Triumph. It is economical to run, absolutely reliable, easy to handle, has plenty of power which can be regulated for very slow or fast travelling. Fitted with Palmer tyres one can be absolutely free from side-slip on a surface however greasy. A Mabon clutch allows the cycle to be started and handled like a car. Two light metal mudguards supported from down tube of frame afford protection from all mud, and at the same time, while the cycle is in motion, cause a strong current of air to pass between them, keeping cylinder cool. A coating of silica enamel protects the plated parts from rusting. I have used a Triumph cycle equipped as described for professional work with perfect success and safety in all weathers throughout the entire year.

J. Henry Stormont.

(1.) After averaging fifteen miles daily on a motor cycle in all weathers for the past eighteen months I have felt no ill-effects whatever, and I use it almost exclusively now. (2.) In a scattered practice in a hilly district the motor cycle has solved the problem of locomotion for me. Cleaned daily by a boy, it is always ready to start, always brings me home again, is a constant pleasure to drive, and my speedy arrival in response to urgent calls is greatly appreciated by my patients. (3.) Far the cheapest means of locomotion, excepting bicycling—and walking. (4.) Single-cylinder 3½ h.p. with large splasher and non-skid.

T. B. P Wilkinson, M.B.

Motor cycling is, in my opinion, a fascinating and healthy pastime if the motor is an easy starter and has well-sprung forks and seat-pillar. Difficult starting spells heart strain. My motor cycle is very useful to m for long journeys and emergency calls It supplements my horse and carriage. If one gets in the beginning a good make of motor the cost of running is very small in comparison to that of keeping a horse. I live in a town with tramlines, and use a 2½ h.p. lightweight Ariel with spring forks and pillar and a Stanley-Dermatine belt. It is easy to start, powerful, and not too heavy. For a country doctor I think a powerful hand starting two-speed machine, such as Roc, would be best.

C. B. Wagstaffe, M.R.C.S. Eng., L.R.C.P. Lond.

(1.) Given a "no worry" mount it beats all other pastimes from the point of view of health, and is good for people who are subject to insomnia. (2.) The handiest and most convenient form of locomotion, especially for the country practitioner, enabling him to do his work in a short time and combine it with pleasure. (3.) I keep horse, trap, motor car, and motor cycle. Give me the latter for simplicity, quick starting, and cheapness. Its cost is one-tenth of the running expenses of either

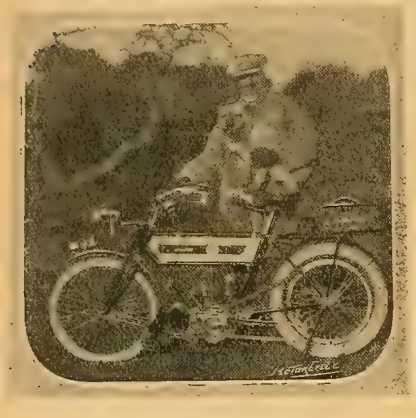
Dr. C. B. Wagstaffe.

of the others. (4.) Low built 3½ h.p. (magneto) with footrests, spring forks, and what is most essential, a good clutch or change-speed gear. My machine I have had fitted with Osborne four-speed, which is so far satisfactory.

Motor Cycling for Health.—

Frank Golding.

Motor cycling is a most healthy pastime. One has only to try it to be convinced of this fact. I must confess I am a fair weather rider, preferring the horse when the roads are wet. The



Dr. Frank Golding.

roads here (Co. Galway) are abominable in winter. The cost of motor cycling, beyond the initial expense, is trifling. It is an ideal method of locomotion. The Triumph is a splendid mount for a doctor. A fool-proof two-speed gear would be an improvement. I imagine the lightweight motor cycle will be very popular with doctors. Handle-bar control is an advance in the right direction.

Eward H. Ezard

My experience, founded on the use of tricars in a London suburban practice, may be summed up: (1.) Personally—general improvement in physical health and strength. (2.) As to practice—(a) increased leisure, and, therefore, more time for cases individually; (b) wider range, so that one can follow up patients who remove to a distance; (c) an ever-ready mount for emergencies and night work. (3.) As to cost, including depreciation and repairs (other than those done by one's self) about 7s. 6d. a week. My horse, man, etc., used to come to about £3 10s. a week. Under this head one may add cheaper holidays, with a wider range of interest therein.

W. Horton Date, M.R.C.S.

In my opinion motor cycling for those free from actual organic disease, if indulged in with commonsense and in reasonable moderation, is a very healthy pastime. I have used a motor cycle for my work in a wide country practice for over three and a half years, and have found it of unspeakable utility, saving a tremendous lot of time and exertion. The bugbear "vibration" exists to a most fallacious extent in the minds of the uninitiated. The cost, of course, is more as compared with the ordinary cycle, but very small as compared with the keeping of horseflesh. I now keep one horse where I used to have to keep three. My ideal machine is a low pedalless 3-4 h.p. with two-speed gear and free engine, with a leaning to chain drive.

T. Cuming Askin, M.D.

(1.) Have ridden 18,000 miles, but have only had one purely non-professional ride of about 130 miles. (2.) Invaluable in a country practice. For the last three and a half years have done most of my work on it. Side-slip in winter and when riding at night is what I most fear. (3.) Largely a matter of luck. Cost of upkeep ought to be nominal, apart from tyres, but the unexpected often happens. (4.) 3½ h.p. single-cylinder two-speed gear, efficient mudguard, without which daily riding is practically impossible.

E. W. S. Hughes.

Motor cycling is eminently healthy if taken in moderation and commonsense, and minus the plethora of "cigs" and "wets" it so often leads to. It is the locomotive *par excellence* for the country doctor, always ready night and day, goes anywhere, and reduces the tedium of the daily round by half. The only cheaper means of locomotion is walking. My motor costs about 2s. 6d. a week, and one week's "cabbing" cost me £2 7s. Type of machine depends on age and district. If old and hilly, free engine and two-speed gear as Roc. Young and level, any modern machine.

William Low, M.A., M.B., Ch.B.

As a pastime I think motor cycling delightful. One need never get overheated, even under very adverse circumstances, and can always wear sufficient clothing to prevent chills. For professional purposes I now prefer a lightweight. It is easily started, lifted on to the pavement, and vibration is practically nil. The cost of running is extremely small compared to running a high-powered machine, and is not to be compared to the cost of keeping a horse, trap, and groom. As for reliability, during the twelve months I have had my Motosacoche I have never had a stoppage of above a minute due to the engine, while I have not had more punctures than with a push bicycle. The roads here (Burslem) are extremely rough and hilly, but I have never found my hand in the least degree unsteady.

T. E. W., M.R.C.S., L.R.C.P.

(1.) I think motor cycling under proper conditions decidedly beneficial to health. Over-exertion, caused by difficult starting after stops, by excessively long journeys, particularly over bumpy roads, or by arduous pedalling on hills, is, of course, injurious, and should be avoided. Goggles should be worn, as the irritation from dust may cause inflammation of the eyes. (2.) Extremely useful for a country practice, especially in dry weather, but of little value for town work. (3.) The motor cycle, especially if supplemented by a push bicycle, is more efficient and much more economical than a horse and carriage. (4.) Undoubtedly a lightweight is best. The frequent restarting of a heavy machine after visits is too fagging. The ideal machine, I think (for professional work), is a lightweight, magneto, low built, and geared suitably to the hills of the district. It should be easy to start. For pleasure and touring I prefer the heavyweight.

Richard Lewis.

(1.) The modern motor cycle is undoubtedly a health-giving and a spirit-reviving machine, the abolition of vibration, and to a great extent of road shocks, having done away with the drawback of the pastime from a medical point of view. (2.) In a country practice the motor cycle is exceedingly useful. This district (Llanfyllin) is scattered and very hilly, with many bad roads, but I have found very little difficulty in getting about, provided the weather is fit for cycling. My machine is a 3½ h.p. Triumph, and has proved itself a splendid climber. (3.) After the first outlay the cost is very little, the only expense in my case being one non-skidding tyre, extra valves (two), and lubricating oil and petrol. It certainly is much cheaper than a horse, and has practically saved me the keep of one horse. (4.) Should be absolutely reliable and a safe hill-climber. Not too heavy to handle, and fitted with some contrivance which will enable the user to stop on hills to make a professional call and restart without going through the undignified proceeding of riding down the hill and then whizzing up past the house of his patient at 30 m.p.h.

W. Fisher Ward.

I consider motor cycling one of the, if not the, most health-giving of pastimes. It acts as a tonic to the liver and nervous system, and gives just that amount of exercise to muscles which is beneficial and requisite. Injurious vibration only exists in the imagination of non-riders. Motor car or horse driving I find have no particular beneficial effect, whilst the cost is at least ten times as great. A motor cycle is much the cheapest effective mode of locomotion a country doctor can possess. The pedal cycle is cheaper, but too slow and tiring. I have used a motor cycle professionally for the last four years. I keep a small Renault car also for night work and wet weather. Personally, I rejoice in my four-cylinder F.N. for its sweet and silent running. Previously I have had two single-cylinder machines. Non-mechanical minds would probably find a single-cylinder 1½ to 2½ h.p., such as the light F.N., very suitable.

Dr. W. Fisher Ward.

Owing to the large number of replies received, we intend to continue this interesting feature as space permits.

THE MOTOR CYCLIST'S IDEAL.

ON March 18th last we sent out with every copy of *The Motor Cycle* a postal voting paper with eight questions, which we reprint below with the percentages of the replies. This voting per was circulated for the purpose of obtaining the inions of our readers regarding the very vexed ques-n of the motor cyclist's ideal. We did not expect at the replies would be unanimous for any one ttern of machine or size of engine; in fact, we have ways told our readers that what is one man's ideal another's *bête noire*. We think a perusal of the rcentage figures will prove that, if any ideal exists all, it lies in the direction of a single-cylinder mount, ither too heavy nor too light, with a reasonable sized gine. In a word, *the efficient type of machine* we ve so consistently advocated from the date of the auguration of this journal.

At the same time, it should not be forgotten that ese replies to our queries are from readers who are more interested in what they are able to purchase w than what may be obtainable in the future. The ture is redolent of good things for motor cyclists; in e meantime, let us enjoy to the full what the makers ve provided for us. Our readers can rest assured at when the day of the "go anywhere, do anything" chine, weighing not more than 75 lbs., is in sight, d it is proved to be as efficient and reliable as its ightier brother, we shall not hesitate to say so. At esent we have contented ourselves with the statement at the machines of the lightweight class are capable carrying lightweight riders almost anywhere at derate speeds; they are extremely handy in traffic, d quite safe on the greasiest and worst winter roads.

Some Deductions.

Dealing with Class I., it will be seen that 41.42 per nt. favour a single-cylinder engine over 80 and not ceeding 85 mm. bore The reason for this is not far seek. The average machine of this size is not unduly avy, it should be an easy starter, and it is as near average rider's ideal as can be desired. With erence to the opposite extreme, the low percentage riders who support the four-cylinder motor bicycle omewhat surprising. Personally, we think the four-inder machine has a prosperous future before it. e four-cylinder car is the most popular type, on count of its smooth running, and on a motor cycle s smooth running is more important than on a car. Dealing with Question II., it is at once clear that the gle-cylinder machine leads easily, which is only ural, since it is the simplest form of motor bicycle ant. Motor cycling is a sport which is enjoyed by ny novices, who wisely start with the simplest icle they can find.

Question III. is important, as it serves to confirm our nion of the desirability of popularising the two-speed r. A mere glance at the figures shows that the jority are in favour of some such device. These rs are less complicated than riders would at first gine, and the price is sure to be less if more gears sold, but until a greater demand and greater supply forthcoming no reduction can be expected. It is a le curious that the majority of two-speed gear enthu-sts should be riders of lightweight twin-cylinders, l it is more curious still that as many riders of twin-inder heavyweights are in favour of the adoption of these devices as riders of single-cylinder machines of about 3½ h.p.

Dealing with Question VI., it will be seen, as was to be expected, that the larger and heavier the machine the greater is the demand for a friction clutch.

Question VII.—The replies to this query call for no special comment, as the lighter and less powerful machines require pedals, and the heavier and faster ones do not.

QUESTION I.

What sized engine (bore and stroke) do you favour for a motor bicycle to carry one rider?

REPLIES.

Under 75 mm.	9.35%
Over 75 and not exceeding 80 mm.	19.87%
Over 80 and not exceeding 85 mm.	41.42%
Over 85 mm.	2.33%
Twin-cylinder lightweights	4.67%
Twin heavyweights	20.09%
Four cylinders	2.27%

QUESTION II.

Do you prefer a single or a twin-cylinder machine?

REPLIES.

Single cylinder	73.01%
Twin cylinders	25.57%
Four cylinders	1.42%

QUESTION III.

Are you intending to order a change-speed gear?

REPLIES.	Yes.	No.
Under 75 mm.	59.94%	43.06%
Over 75 and not exceeding 80 mm.	58.88%	41.12%
Over 80 and not exceeding 85 mm.	56.11%	43.89%
Over 85 mm.	61.11%	38.89%
Twin-cylinder lightweights	72.22%	27.78%
Twin cylinders	61.48%	38.52%
Four cylinders	54.54%	45.45%

QUESTIONS IV. AND V.

Please state your weight, and what ratio of gear do you prefer to suit the machine you select, and to accommodate your weight?

The replies to these questions are governed to a very large extent by the size and type of engine; it is therefore unnecessary to give the percentage figures in reply to these queries.

QUESTION VI.

Are you in favour of a free-engine clutch without a two-speed gear?

REPLIES.	Yes.	No.
Under 75 mm.	29.17%	70.83%
Over 75 and not exceeding 80 mm.	32.03%	67.97%
Over 80 and not exceeding 85 mm.	30.10%	69.90%
Exceeding 85 mm.	50.00%	50.00%
Twin-cylinder lightweights	47.23%	52.77%
Twin-cylinder heavyweights	47.21%	52.79%
Four cylinders	54.54%	45.46%

QUESTION VII.

Are you an advocate of pedalling gear?

REPLIES.	Yes.	No.
Under 75 mm.	81.94%	19.06%
Over 75 and not exceeding 80 mm.	69.28%	30.72%
Over 80 and not exceeding 85 mm.	74.60%	25.40%
Exceeding 85 mm.	55.55%	44.45%
Twin-cylinder lightweights	58.33%	41.67%
Twin-cylinder heavyweights	44.72%	55.28%
Four cylinders	36.37%	63.63%

QUESTION VIII.

What do you consider the mininum weight for your ideal machine?

REPLIES.

Under 100 lbs.	8.48%
Over 100 and not exceeding 150 lbs.	44.13%
Over 150 lbs.	47.37%

Motor Cycling for Ladies.

By ATALANTA.

MOTOR cycling as a pastime for ladies has glorious possibilities. Why they have been so slow to grasp the advantages offered by the use of a motor cycle, with all its opportunities for enjoyment by indulgence in a pleasant and healthful recreation, and its handiness as a means of locomotion, must be a puzzle to many minds. Motor cycles for men have long passed the experimental stage. It is now quite four years since their machines became practical in every sense of the word—thoroughly reliable, capable of resisting ordinary and extraordinary strains, of withstanding long sustained wear and tear, or sometimes sad abuse, and yet their weight is such that any ordinary man or youth can easily handle and control them. Their running cost is scarcely worth consideration, and their first cost is reasonable, though varied. We have no cause to wonder at the fact that the army of men motor cyclists increased with such rapidity that now they must be numbered in thousands. Yet, strange to say, the number of lady motor cyclists can at present almost be counted on the fingers of the two hands. To me it seems that though there is now a great awakening of interest, there has existed, and still does exist, a mighty mass of misconception on the subject and prejudice regarding it, and it is the object of this present article to try to remove some of these prejudices.

Having been an ardent motor cyclist for nearly three years, it will perhaps be conceded that my knowledge of the subject is born of practical riding experience—experience of the trials and tribulations of the motorist, as well as of her joys and pleasures—and a very little practical experience usually will outbalance much theory.

Is Motor Cycling Suited to Ladies?

Most people, immediately the subject is broached, cry out, "Oh, motor cycling is not suited to ladies." Well! Why not? It must at the onset be admitted that a motor cycle is not a fat, shaggy, little pony, nor is its driving altogether an affair of whip and reins. It requires knowledge, constant carefulness, and intelligence, and women are not deficient in these qualities. They may not have the same mechanical aptitude as some men, nor that engineering ingenuity that overcomes insurmountable obstacles. Such genius, however, is not absolutely necessary to good driving; indeed, such traits in the ill-trained amateur mind often become a weakness, leading into the besetting sin of tampering with things that are far best left untouched. Of carefulness and of intelligence woman has her fair share; of mechanical aptness she has as much as is necessary for the purpose of driving a motor cycle. As proof, many ladies drive their c cars—powerful monsters, and clumsy to handle, c pared with the humble, handy motor bicycle—and they can drive these leviathans with ease and pleasu why cannot they drive the smaller machine?

Is a Woman Strong Enough?

How many thousands of women to-day p ordinary bicycles, machines equipped with gear c mudguards, and dressguards, and weighing from 2 35 lbs., or even more, and propel them every yar the way?—a weary, ceaseless grind that surely requ far more strength and energy than the management control of a self-propelled cycle weighing from 8 100 lbs. Of course, there is always the start t considered—an awful bugbear that is not altoge imaginary—but with the exercise of a little care thoughtfulness even this real difficulty is overcome

First see and know that everything is absolu right to ensure an easy start, and a start on l road is always certain without over-violent exertion. choice of position can usually be made, so when venient start on the down grade, and when out wi friend demand a push; a slight push is not n trouble to him, and will be of great assistance to In other ways, the control and steering of a m bicycle are as easy as the steering of a pedal bic Now and then as the road varies its contour, levers must be slightly altered to suit the condit Going uphill open the gas tap a little more; dow or on level road slightly close it again; going do steep hill the exhaust valve may be raised; but us on an ordinary main road mile after mile can be ri without giving heed to the levers at all, and in

The authoress, seated on the motor bicycle described in the accompanying article.

case handle-bar control is now becoming universal, there is no necessity to let go of the handles at The work of control also soon becomes al automatic, and is performed sub-consciously. I m

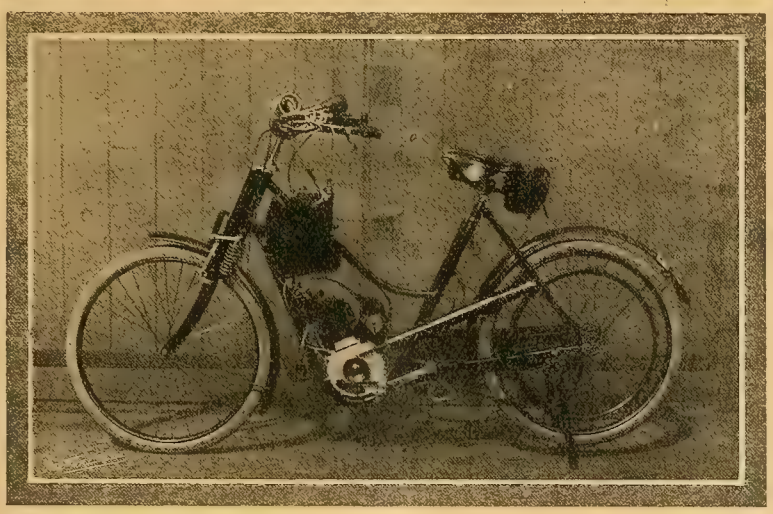
Motor Cycling for Ladies.—

ave often ridden 80 to 100 miles, and on more han one occasion over 120 miles, in a day, and een fresh enough at the end to go for a walk after tea.

Does it Look Well?

This is a question of first importance to every oman, excepting perhaps a few of the extreme uffragettes and "ultra-blue-stockings." Every woman ho has a womanly mind wishes to look nice, and ould turn hot and cold with horror at the bare idea f adopting the ungraceful attitudes or going about ith oily hands and dirty face in the manner of some f the enthusiastic amateur male mechanicians one ees at hill-climbs and other competitions.

Let me assure you there is no cause for alarm. Even e youngest and greenest male novice sooner or later iscovers that oily stains, characteristic poses, and echnical jargon, though they may be the hallmark f genius, are not essential to a full njoyment of the astime. A woman ho can free-wheel n ordinary bicycle n graceful style ith good carriage nd bearing, will de a well-designed nd suitable motor icycle in exactly ne same manner. here is no radical ifference between a dy's pedal bicycle nd a lady's motor icycle, the only dis-nction being that ne requires con-ant and continuous ushing from the der, like penance n the treadmill, hile the other is lf-propelled, continuously free-wheeling, a thing of eauty, a fit mount for its rider.



Mrs. Edward Kennard's Lightweight Clyde with Motosacoche attachment. The machine weighs 80 lbs., is fitted with Bosch D.A. 1 magneto, Druid spring forks, Price's stand, Palmer tyres, Rich's detachable tubes, and two-speed pedalling gear. Mrs. Kennard has done 50 miles in 2½ hours on this machine, and with light pedal assistance climbed Crow Hill, one of the steepest hills in the county of Leicestershire.

Mrs. Grundy says, "Doesn't it Look Fast?"

Ah! there's the rub. Mrs. Grundy asks the question, nd an answer must be returned with humility and eference, for, though she is powerful and spiteful at mes, she is a dear, good soul at heart, and, anyway, o lady likes to be considered fast. It may be that gain we shall have to take part in the old battle etween prejudice and progress, though surely in this se it will not be so fierce as on some former occasions. ome can yet remember how bitter was the contest hen ladies first took to bicycles, and how many arents and other authorities condemned the awful novation, though graciously permitting their girls use a tricycle, not because it was lighter and better ited to their smaller strength and powers of ndurance, but simply because it looked "more proper." et in the end good sense gave its verdict in favour of e suitable machine, and progress triumphed, as it ill again; for motor cycling is a really womanly stime, it is exhilarating, it is healthful and bene-ial, and, above all, it is exceedingly graceful.

The Suitable Machine.

These remarks, however, are based on the supposition that the lady rider mounts a suitable machine, and here arises a very real difficulty, for suitable machines are exceedingly scarce. The requirements of a lady are so exacting, and it is so imperative that every detail of construction should receive due and proper consideration, that the building of a lady's motor bicycle is a knotty problem, and one not to be too lightly undertaken; but surely it is not beyond the power of the skilled and experienced motor cycle engineer to produce a suitable machine at a reasonable price. Here I may say that my own opinion of what is suitable has been carefully formed after over two years of riding through a district of fair average difficulty as regards hills and road surface (in Bucks and a few holiday tours through the southern counties and it is offered only as a helpful suggestion to thos who contemplate building or purchasing, and not as a hard and fast statement of what is right and best, for people have different ideas and desires and purses, and some may consider a different sort of machine better suited to their own use. Frame must be of dropped pattern, with ample forward clearance, for ease of mounting and dismounting. The machine should be light, for ladies who desire to ride a motor bicycle are not Amazons, but ordinary English ladies, and machines often require to be handled; withal they must be strong—strong enough to feel solid and rigid, not vibrating unduly to the road shocks or in unison with the engine. To aid in this respect, the top dropped bar of frame may be built a little higher than is usual in the construction of a pedal bicycle, for there is but little pedalling to be done, and, anyway, it is useless to place this tube lower than the run of the belt. Girder forks, though not indispensable, add greatly to one's feeling of security. Spring forks are absolutely necessary; without them a long or fast ride is not at all a pleasure, but an ordeal. A well-sprung saddle is also a necessary luxury; it need not be unduly large. Have handle-bars of the ordinary cycle shape; long cranks, with a low gear for pedalling. My machine had 26in. wheels, with 1¾in. Clincher motor cycle tyres; probably a 2in. front and 2¼in. or 2½in. back tyre would be better. So much for the cycle parts. Now as to the works. A good engine is of the first importance, one with a fair turn of speed, and with plenty of power for the hills. Without speed there is no exhilaration in the pastime; without power there is much chagrin and hard work. Light pedalling on the hills spoils many a glorious sunset. A single-cylindered engine in inclined position under down tube

Motor Cycling for Ladies.—

is very suitable. This position tucks the engine well out of the rider's way, keeps the weight low down and forward, thus making the machine easily handled and well balanced when ridden. The carburetter may be placed in any convenient position according to the make of carburetter and engine, but care must be taken to avoid placing it where the skirt may prevent it receiving a free supply of air. Also see that it be placed low relatively to the tank, in order to secure a proper flow and head of petrol. My own machine as delivered was very annoying in this respect. With a tank holding a gallon, less than a quart could be used before the engine began to run erratically, and finally fail through starvation. The system of lubrication should be simple and reliable. An oily engine is an abomination, but an engine screeching for oil is anathema. I have found the Jap automatic sight feed lubricator perfect; when adjusted it requires absolutely no attention except to fill the tank when needed. There is no worry in trying to remember how many miles since engine received its last charge. Of course, there is ease in observation of a simple, infallible rule imparted to me when I used a pump: Always give another charge when you feel the engine beginning to lose power. But I fear that even strict observation of this rule must often rob an engine of many, very many, years of its useful life. I believe there are other automatic systems on the market, but have no personal experience of them. If the pump system be adopted, have the handle placed where it can be easily reached from the saddle, but also where in using it there is not the slightest possibility of the hand coming into contact with either wheel or belt. A very light touch from a rough belt fastener makes a nasty mound on the back of one's hand.

Specification of a New Ladies' Mount.

Thus far my opinion is altogether the outcome of practical riding experience. Further than this I go with extreme diffidence. Theories do not always work out in practice exactly as expected. Still, I have my own ideas of an ideal mount for a lady, and, having sold my machine, have already placed my order. The engine and accessories are to hand, and we only await the advent of a frame to begin the work of building. A very short specification and reason for some of the more important articles may perhaps be of interest: Engine, 3½ h.p. Jap, chain drive. Oppermann two-speed gear with clutch and starting handle. No pedals, but comfortable footboards. Bucket seat instead of saddle. Rear brake actuated by foot lever; clutch similar. Ignition by magneto. Coil and accumulator, also tool box and spares box, I intend to have placed under the footboards. For all these I have sufficient reason. The engine must be of ample power to take most hills on top gear. There must also be a good turn of speed in machine, or there is little pleasure in riding, for two reasons—first, speed in itself is delightful and exhilarating, want of it is depressing; second, when a lady rides a motor bicycle she needs enough speed to enable her to quickly shake off the scorching clubman cyclist. I digress to grumble. It is not without good cause that I say these young athletes, especially near London, are absolutely without manners; yet what they lack in manners they amply possess in impudence. From every other section of the community I have always received the kindliest consideration, but these smart City youths—they are contemptible. A fast machine is needed to quickly leave them far behind, panting after their long-sustained manly exertions.

The two-speed gear and clutch appeal to me most for starting purposes. Consider for a moment the difference between a man's and a lady's manner of mounting, and you will instantly perceive the great disadvantage under which a lady labours; it is not only a man's superior strength that tells its tale. A man to start runs alongside the machine, places one foot on the pedal, and swings the other over and around the back mudguard, and always has the machine going at at least a good fast walking pace before he springs into the saddle. A woman can give only one comparatively feeble push as she rises to the saddle and has to pedal from a practical standstill. The question is not so much, can she pedal it fast enough but will the left pedal come up and over the dead centre? With regard to starting by pedalling, a free engine clutch would probably be of very great assistance and make starting always sure and easy. I may be expecting too much from the two-speed and clutch yet, as it is on the same principle as a car's clutch it should start like a car, or alternately, with low speed in gear (11½ to 1); pushing machine along, the engine ought to start firing at a four miles an hour rate and at that pace mounting to the saddle would be neither undignified nor dangerous. The chain drive, I am told, is necessary with a very low gear. With the low gear, too, the machine should take every freak hill so, as they are not needed for either starting or hill climbing, pedals are useless.

One expects one's new machine to work wonderfully well, and I am no exception to the rule. At a later date, if it be considered of sufficient interest, I shall, with the Editor's permission, give a short account of how it does work, and, for the benefit of others who may be treading the self-same round, not hiding its faults, if any.

Photography and Motor Cycling (see pages 364-365). Fig. 2—A roll film camera in a leather case, slung round the shoulder with a leather or webbing strap.

CURRENT CHAT.

SPECIAL FEATURES.

OUR HISTORIC HIGHWAYS (Illustrated).
MOTOR CYCLING FOR HEALTH (Illustrated).
THE MOTOR CYCLIST'S IDEAL.
THE AUTO CYCLE UNION QUARTERLY TRIALS (Illustrated).
THE M.C.C. MEMBERS' HILL CLIMB (Illustrated).

The First Race Meeting at the Stadium.

The motor cycle race on the Shepherd's Bush Stadium, organised by the Finchley Harriers, has been postponed from May 11th to Thursday, May 14th.

The End-to-end Trial.

We cannot urge too strongly the necessity for sending in entries for the End-to-end Trial as early as possible. The preliminary regulations, route, and entry forms are now ready, and copies will be sent to any motor cyclist who intends to compete, on application to the secretary, the Auto Cycle Union, 18, Down Street, Piccadilly, W.

Barnsley Victoria C.C. (Motor Section).

On Thursday, May 14th, a hill-climbing competition (A.C.U. formula) will be held at Stainboro' Park (by kind permission of Capt. Wentworth), to commence at 3 o'clock sharp. Prizes will be distributed by the Mayor (Councillor J. S. Rose). The rules state that persons crossing the course do so at their own risk. No dogs allowed. Entries should be sent to the hon. sec., S. Shone, 76, Blenheim Road, Barnsley.

International Auto Cycle T.T. Race.

The following entries have been received for the International Auto Cycle Tourist Trophy Race: Single-cylinder Class—C. R. Collier (holder), 1 Matchless; M. J. Schulte, 3 Triumphs. Multi-cylinder Class—H. Rem Fowler, 1 machine; T. Tessier, 1 Bat. As previously announced in *The Motor Cycle*, Mr. M. J. Schulte has kindly offered a silver cup to the first and a gold medal to the second and third private owners in the single-cylinder class. Further particulars of the race, entry forms, etc., can be obtained upon application to the secretary, Auto Cycle Union, 18, Down Street, Piccadilly, W.

Birmingham Motor Cycle Races.

Sport and Play, Lucifer House, Lionel Street, Birmingham, are organising a big cycle and motor cycle tournament at the Aston Villa Grounds on May 23rd. Colver, Collier, and Martin have already entered, and a series of three-cornered matches is being arranged between these three well-known racing motor cyclists. A special feature will be made of a race for fully equipped tourist machines as an inducement to ordinary road riders to take part in the racing. In addition, there is a handicap for light racing machines with a cylinder capacity limited to 76 by 76, or its equivalent cubical capacity.

Admission to Brooklands Track.

The 5s. enclosure at Brooklands has been done away with, and the ground included in the 2s. 6d. enclosure. The charge for admission to the reserved lawn has also been reduced from £1 to 10s.

Suggested Inter-club Meet in the South.

Northern motor cyclists have their annual meet at Richmond, and it has been suggested by the Western District M.C. that Southern motor cyclists should take part in an inter-club meet next July. There are many motor cycle clubs in and around London, and a successful meet should easily be organised. Other clubs are asked to take the matter up, and we shall be glad to publish suggestions as to a suitable place of meeting.

Police Traps.

Alderley Edge, Cheshire, on the main road to Congleton, beginning at Old Alderley Church and reaching to Monksheath cross roads.

Wanstead, one-eighth of a mile from the top of Wanstead Flats to the gate at Wanstead Park, on the Woodford Road.

Police traps are in operation on the Dundee to Perth Road, another on the Dundee to Arbroath Road, and still another in the Coupar Angus district.

Nice Motor Cycle Trials.

On the 26th ult. the Flying Kilometre Trials in connection with the above meeting were held on the Promenade des Anglais, Nice. Last week we gave the results of the reliability run, when Larippe (Moto-Rêve) was first in the multi-cylinder class, and Anken (K.D.) in the single-cylinder class. The times made in the flying kilometre test were: Multi-cylinder class—1, Guerrieri (Alcyon), time 53s. (or 42.18 miles per hour); 2, J. Larippe (Moto-Rêve), 1m.; 3, T. Larippe (Moto-Rêve), 1m. 2s.; 4, Berlié (Moto-Rêve), 1m. 3s.

In the single-cylinder class, Boriel (K.D.) was first in 1m. 6s., equal to 33.8 miles per hour. Petit (Terrot) second in 1m. 7s., and Raynaut (Werner) third in 1m. 11s.

The Hill-climb on La Turbie.

The hill-climbing competition on La Turbie, three kilometres in length, resulted as follows: Multi-cylinder class—J. Larippe (Moto-Rêve), 4m.; 2, F. Larippe (Moto-Rêve), 4m. 30s.; 3, Guerrieri (Alcyon), 4m. 50s.; 4, Berlié (Moto-Rêve), 4m. 58s.

Single-cylinder class—1, Petit (Terrot), 4m. 22s.; 2, Borel (K.D.), 4m. 55s.; 3, Raynaut (Werner), 5m. 18s.; 4, François (Alcyon), 5m. 33s.; 5, Anken (K.D.), 5m. 45s.; 6, Amerio (Motosacoche), 9m. 45s.

On the general classification, which was calculated on a formula in which total weight figured prominently, the result was: Multi-cylinder Class—1, Berlié (Moto-Rêve), 153 points, gold medal; 2, F. Larippe (Moto-Rêve), 152, silver medal; 3, J. Larippe (Moto-Rêve), 151, bronze medal.

Single-cylinder Class—1, Amerio (Motosacoche), 155 points, gold medal; 2, Petit (Terrot), 136, silver medal; 3, Anken (K.D.), 130, bronze medal. The Nice Automobile Club has decided to organise another competition on similar lines next year, when valuable trophies will be offered.

Brooklands Motor Cycle Race.

The motor cycle race which will be contested on the Brooklands Track on Saturday will, as previously announced, be a handicap. The starts will be allotted by time allowances, so that each machine will have to cover the full distance. Competitors will be despatched singly, and the start will probably be just opposite the entrance to the paddock. No starters will be allowed on this occasion.

THE ENTRIES.

The splendid total of thirty-one entries have been received for the race next Saturday, viz., W. H. Wells, 5 h.p. Vindec Special; H. P. Beasley, 5 h.p. Rex; F. G. Andraea, 5 h.p. Rex; G. Aldington, 3½ h.p. Kerry; W. H. Bashall, 3½ h.p. Triumph; A. Wright, K.D. Lightweight; B. C. Lamb, 4½ h.p. F.N.; A. Sproston, 5 h.p. Vindec Special; E. Pond, 5 h.p. Vindec Special; M. Geiger, 6 h.p. N.S.U.; H. G. Partridge, 6 h.p. N.S.U.; W. W. Genn, 7-8 h.p. Minerva; J. C. Davis, 5½ h.p. Rex; R. O. Clark, 4½ h.p. F.N.; W. E. Cook, 7 h.p. N.L.G.; F. W. Newsome, 3½ h.p. Triumph; F. Toman, 4½ h.p. Laurin and Klement; J. Merfait, Laurin and Klement; H. A. Cooper, 3½ h.p. Triumph; R. M. Brice, Brown; A. G. Reynolds, 5 h.p. Vindec Special; H. Shanks, 2¾ h.p. Chater-Lea; T. H. Tessier, 6 h.p. Bat; G. L. Evans, 3½ h.p. Rex; E. Kickham, 7 h.p. Leader (Peugeot engine); W. G. McMinnies, 3½ h.p. Triumph; G. L. Fletcher, Moto Rêve; R. Mundy, 3½ h.p. magneto; G. Dedman, Dedbury (De Dion engine); A. Mayer, Buchet; W. Pershke, Diamond.

Auto Cycle Union Quarterly Trial.

LAST Wednesday the Spring Quarterly Trials organised by the A.C.U. were held over the usual course from Uxbridge to Banbury, *viâ* the Oxford Road, Wheatley, and Islip, and back *viâ* Bicester, Chesham, Amersham, and Beaconsfield. The entry was a good one, thirty-one competitors signing their forms, and of these twenty-nine started. For the first time since these useful and interesting trials have been organised, not a single passenger machine took part, which is strange, since up to the present not a single motor bicycle with a sidecar attached has made a non-stop run on this by no means easy route. The lightweight class, however, was well represented. Wednesday's event presented several fresh features. Firstly, every sort of road condition was encountered—mud, slime, snow, dry and good roads, rough surface, and floods. Secondly, the results on the hills were divided into three classes. Lastly, the time of the fastest machines on either or both of the hills was not made public. From Uxbridge to the foot of Dashwood Hill the roads were heavy, muddy, and treacherous, so that most of the competitors' engines were somewhat hot before they reached the foot, a fact which probably accounted for several failures. Never yet since the Quarterly Trials have been held has every machine climbed Dashwood Hill satisfactorily, and this is "a consummation devoutly to be wished!"

Quarterly Trials competitors (McMinnies, Newsome, and Watherhilt) negotiating the flooded roads on the way to Aylesbury. The engines were immediately converted from air to water-cooled. The riders also experienced a cooling effect to their feet!

Dashwood Hill Performances.

The following is the results of the Dashwood section of the competition, the figures representing the difference in time between each competitor, while a few remarks are appended against the performances of the majority of the machines.

Class I. (single-cylinder machines).—W. G. McMinnies (3½ h.p. Triumph), excellent, 0; F. W. Newsome (3½ h.p. Triumph), 4⅖s., excellent; G. Lee Evans (3½ h.p. Rex), very good, 16s.; D. F. Steeves (3¾ h.p. N.S.U.), very good, 31⅖s.; W. A. Tyndale (3½ h.p. N.S.U.), pedalled hard, fair, 51⅖s.; C. R. Taylor (3¾ h.p. N.S.U.), steady, no pedalling, 52s.; H. Newey (3½ h.p. L.M.C.), steady, no pedalling, 1m. 13s.; R. Samson (3½ h.p. L.M.C.), pedalled, 1m. 7⅖s.; P. Watherhilt (3½ h.p. Zenette) dismounted twice and restarted, 1m. 37⅖s.; H. B. Lewis (3½ h.p. Triumph) dismounted.

Class II. (twin-cylinder machines).—F. W. Applebee, jun. (5 h.p. Rex), excellent, 0; M. Geiger (6 h.p. N.S.U.), ⅗s., excellent; F. W. Applebee (5 h.p. Rex), excellent, 1⅗s.; H. G. Partridge (6 h.p. N.S.U.), 18s., very good; J. Stuart-Shaw (5½ h.p. two-speed Phänomen), good, top speed, 1m. 31⅕s.; Miss Hind (5 h.p. Rex) stopped on the hill and restarted with ease with the clutch, 3m. 1⅗s.; H. Fuller (3½ h.p. Diamond) dismounted.

Class III. (lightweight motor bicycles).—G. L. Fletcher (2 h.p. Moto-Rêve), pedalled, 0, good; R. J. Bell (2 h.p. Moto-Rêve), good, no pedalling, 2⅘s.; J. V. Robinson (1¼ h.p. Motosacoche) pedalled slightly, 10s.; P. Phillips (2¾ h.p. Douglas), good, no pedalling, 11⅗s.; W. W. Douglas (2¾ h.p. Douglas), fair, pedalled, 12s.; W. Smith (1¼ h.p. Motosacoche), fair, pedalled, 16⅗s.; R. D. Yardsley (2½ h.p. Fairy), fair, pedalled, 1m. 38⅗s.

After Dashwood Hill had been surmounted, the roads improved a good deal, but after Wheatley, a few miles along the Islip Road, they became very greasy for a short distance. In this district the floods were considerable, Islip looking like an island in a great lake. At Bletchington, also, they were considerable. On the main road from Oxford to Banbury the surface and road conditions were for the most part excellent.

Auto Cycle Union Quarterly Trial.—

All through Oxfordshire the police behaved admirably. In none of the counties traversed did they assume a hostile attitude, but in Oxfordshire they were a real help to the men. At every cross road and dangerous or doubtful turning a constable was stationed, and on many occasions the men were directed by a kindly policeman. Just after Aynho, which, unfortunately, is just over the border in Northamptonshire, where the route leaves the Buckingham Road, there is a doubtful turning, this time unmarked by an arrow. Would that it had been in Oxfordshire. After lunch at Banbury came the most exciting part of the day's journey. The roads were good and dry, but dustless, when some miles beyond Bicester a stretch of flooded road was suddenly encountered. We were ahead of the men at the time, but while we were considering what to do, three of the lightweights took the water like ducks. Their engines being high in the frames took no harm, and with the aid of a little pedalling they got through about 400 yards of water, which was 6in. deep in parts. One competitor left the road and found himself in a ditch two feet deep. Miss Hind was conveyed across in one car, while Reynolds piloted her bicycle through, being

Three Quarterly Trials competitors entering Banbury.

towed by another car. To see some of the men plunge into that swift-running stream which coursed across the roadway, flinging the water far and wide, was a sight to behold, but motor bicycles with low placed magnetos and belt transmission are not a success for aquatic performances. One more stretch of flooded road had yet to be encountered, but this was fortunately a short length, and the rest of the road was in fair condition, though very rough and sadly in need of repair in places. At the foot of Gore Hill, each man was made to dismount and make a standing start, a wise precaution, as the corner at the foot is awkward, if not dangerous. As on Dashwood, there was more traffic than usual on the hill, but as a contrast to the former the surface was loose and in very poor condition.

Results on Gore Hill.

The following are the results of the climb:

Class I.—W. G. McMinnies (3½ h.p. Triumph), 0; F. W. Newsome (3½ h.p. Triumph), 4s.; G. Lee Evans (3½ h.p. Rex), 4⅖s.; H. B. Lewis (3½ h.p. Triumph), 27⅗s.; H. Newey (3½ h.p. L.M.C.), 36s.; C. R. Taylor (3¾ h.p. N.S.U.), 44⅕s.; R. Samson (3½ h.p. L.M.C.), 53⅖s.; P. Watherhilt (3½ h.p. Zenette), 59⅗s.; F. W. Barnes (3½ h.p. Zenette), 1m. 19⅕s.

Class II.—M. Geiger (6 h.p. N.S.U.), 0; F. W. Applebee, jun. (5 h.p. Rex), ⅘s.; F. W. Applebee (5 h.p. Rex), 2⅗s.; H. G. Partridge (6 h.p. N.S.U.), 10⅖s.; H. Fuller (3½ h.p. Diamond), 33⅘s.; J. Stuart Shaw (5½ h.p. Phänomen), 58⅗s. Miss Hind stopped and restarted on several occasions.

Class III.—G. L. Fletcher (2 h.p. Moto-Rêve), pedalled, 0; J. V. Robinson (1¼ h.p. Motosacoche), pedalled, 2⅗s.; P. Phillips (2¾ h.p. Douglas), 4⅗s.; W. Douglas (2¾ h.p. Douglas), 13⅖s.; G. Connor (2½ h.p. Fairy), 18⅕s.; R. D. Yardsley (2½ h.p. Fairy), 20⅘s.; W. Smith (1¼ h.p. Motosacoche), pedalled, 32⅗s.; R. J. Bell (2 h.p. Moto-Rêve), pedalled, 39s.

Below we give a summary of the performances:

F. W. Newsome (3½ h.p. Triumph), non-stop. J. Stuart-Shaw (5½ h.p. Phänomen, Nala two-speed gear), non-stop. H. H. Newey (3½ h.p. L.M.C.), non-stop. R. Samson (3½ h.p. L.M.C.), one puncture; will probably be awarded non-stop certificate. G. Lee Evans (3½ h.p. Rex), non-stop. W. G. McMinnies (3½ h.p. Triumph), one traffic stop; will probably be awarded non-stop certificate. E. R. Taylor (3¾ h.p. N.S.U.) stopped in error on top of Gore Hill; will probably be awarded non-stop. G. Fletcher (2 h.p. Moto-Rêve), non-stop. J. V. Robinson reports three punctures; if no further trouble was experienced he will probably receive a non-stop certificate. P. Phillips (2¾ h.p. Douglas), W. W. Douglas (2¾ h.p. Douglas), and F. W. Applebee (5 h.p. Rex), non-stops. F. Applebee, jun. (5 h.p. Rex), non-stop; one puncture repaired under observation. H. G. Partridge (6 h.p. N.S.U.) may also be awarded a non-stop certificate, since he only stopped to ask his way at Amersham. D. F. Steeves (3¾ h.p. N.S.U.), three punctures; dismounted on Gore Hill through slipping belt. W. Barnes (3½ h.p. Zenette) had change speed hand wheel fixed on in repair shop in High Wycombe; otherwise completed course satisfactorily. M. Geiger (6 h.p. N.S.U.), magneto driving chain came off. H. Fuller (3½ h.p. twin Diamond) dismounted on Dashwood through slipping belt, due to wet. Miss Hind stopped on Dashwood Hill through plug and valve spring trouble; puncture near Bletchington; also several stops on Gore Hill, probably due to overheating. W. A. Tyndale (3½ h.p. N.S.U.), belt broke on Gore Hill. R. Bell (2 h.p. Moto-Rêve), belt came off. G. Connor (2½ h.p. Fairy), several stops to replace inlet valve cotter. R. D. Yardsley (2½ h.p. Fairy), one stop; front wheel spindle nuts loose. W. Smith (1¼ h.p. Motosacoche), one stop; short circuit three miles from start. H. B. Lewis (3½ h.p. Triumph) dismounted on Dashwood. P. Watherhilt (3½ h.p. Zenette) ran out of petrol and adjusted belt. Retirements: E. J. Browning (4 h.p. N.S.U.), punctures. J. Beck (2½ h.p. Fairy), engine trouble. L. W. Bellenger (3½ h.p. L.M.C.), carburetter trouble. The judges on this occasion were Messrs. A.G. Reynolds and A. Sharpe; the timekeepers Messrs. F. Straight and A. V. Ebblewhite. Among the other officials may be mentioned Messrs. H. G. Bell, W. Grew, C. A. Smith, J. Van Hooydonk, and E. M. P. Boileau.

The M.C.C. Members' Hill-climb.

THE above competition took place last Saturday at Sharpenhoe, four miles north-west of Luton. The hill is admirably suited for a hill-climb, being almost straight and practically devoid of traffic.

Everything passed off satisfactorily, and the Bedfordshire police, who sent down an inspector and two or three constables, were of great assistance in keeping the course clear. The number of spectators present was considerable, and these, owing to the nature of the hill, had an excellent view of the competition, without there having been necessity to crowd all over the course, since the high banks on either side of the road would have afforded accommodation for double the number. The weather was gloriously fine, and a light breeze blew up the course, but the surface of the hill was rather

Mr. E. W. Brewerton makes fastest time in the Passenger Class.

loose in places. The motor cycle entries were thirty in number, and were divided into three classes—Class I. for single-cylinder motor bicycles, Class II. for twin-cylinder motor bicycles, and Class III. for passenger machines.

Owing to the temporary scales rigged up at Sharpenhoe not being satisfactory until they had been tuned up, the hill-climb did not begin till forty-five minutes after the advertised time, but once started it was run off quickly.

In Class I., R. M. Brice made the fastest time on the 3½ h.p. Brown. He rode magnificently, and the machine travelled in excellent form, covering the course in 50⅘s. Next in order of time came W. A. Sale, who came up in good style on a 3½ h.p. Rex in 52s. W. A. Jacobs, on a similar machine climbed well, but his engine appeared to be missing, time 1m. 0⅗s.; C. C. Cooke, 3½ h.p. Phœnix, excellent, time 1m 1⅘s.; P. H. Trotman, fair, time 1m. 8⅘s.; Dr. C. Gibbon 3½ h.p. Deacon-Minerva, missed fire, time 1m. 15⅘s.; J. P Le Grand, 2½ h.p. Matchless, came steadily and well, time 1m. 18⅘s.; J. Stuart-White, 1¼ h.p. Motosacoche, over lubricated and belt slipping, pedalled, time 1m. 46s.

Class II.—W. H. Wells, 5 h.p. Vindec, splendid performance, time 49½s.; E. Pond, 5 h.p. Vindec, excellent, 51⅘s. F. White, 5 h.p. Rex, excellent, 52⅘s.; Miss Hind, 5 h.p Rex, rode splendidly, and was greeted with hearty applause 53s.; O. L. Summers, 5 h.p. Vindec, climbed the hill in good style, 53⅕s.; C. H. Barfield, 5 h.p. Vindec, good, 55s.; S H. Fry, 5 h.p. Vindec, took the corner beautifully, 55⅖s. W. A. Sale, 5 h.p. Rex, and A. S. Phillips, 5 h.p. Vindec equal, 56⅖s.; A. G. Reynolds, 5 h.p. Vindec, 58⅗s.; S. G Frost, 4½ h.p. Minerva, 58⅗s.; C. J. Seed, 5 h.p. Vindec 1m. 0⅖s.; V. Olsson, 5 h.p. Vindec, 1m. 2⅖s.; T. F. Cox 5 h.p. Rex, 1m. 4⅖s.; W. Pershke, 3½ h.p. Diamond, pedalled (brake band apparently binding somewhere), 2m. 1⅖s.

Class III.—Dr. E. W. Brewerton, 10 h.p. Lagonda tricar came up well, but changed into first speed rather late, time 1m. 58s.; A. F. Ilsley, 5-6 h.p. Phœnix, came up well, time 2m. 57⅖s.

After the course was clear again, the car class was run off Mr. S. F. Edge (40 h.p. Napier) making the fastest time namely, 1m. 2⅖s. We mention this fact to show where the 40 h.p. six-cylinder would have been had it competed with the motor cycles. It would have been beaten by twelve of the twin-cylinder machines and four of the single-cylinder motor bicycles. Motor cyclists, therefore, still hold the field as far as hill-climbing is concerned.

After the competition was over the officials adjourned to the George Hotel, Luton, where the times were given out. The results of the hill-climb are worked out on Professor

$$\text{Callendar's formula} \quad \frac{T \times C}{W} \quad \text{(not worked on Saturday at 7.30)}$$

The following are some of the officials who were responsible for the competition: Judges, R. H. Head and R. C. Davis; timekeeper, F. T. Bidlake and assistant; marshal, Victor Abraham; clerks of the scales, F. Mussell and R. C. Davis.

CLUB NEWS.

The Newcastle Motor Club.

The result of the speed-judging competition held at Belsay on Good Friday has been announced as follows: 1, J. Shaw (4½ h.p. Minerva with sidecar); 2, Jas. Moore (3½ h.p. Dene); 3, A. J. Lucas (6 h.p. Rover).

Western District M.C.

It has been decided to hold a reliability trial on May 17th, the course being from Hounslow to Bath and back. The winner to be the competitor who does nearest to twenty miles per hour, but the speed limit must not be exceeded.

Glasgow M.C.C.

As usual, this club's competitive events commence with a hill-climbing contest, and this will be held on the Peesweep Hill, Paisley, on Saturday, 16th inst. The contest is an open one. Entries must be lodged by this day week with the hon. sec., J. S. Fulton, 131, West Regent Street, Glasgow.

Richmond and District M.C.C.

The opening run takes place on May 10th to Frensham Ponds. The captain of the club kindly promised a challenge cup to be competed for on July 11th in a reliability trial. Six competitions have been arranged, for which prizes and medals will be awarded. Week-end trips are arranged for Petworth, Brighton, Worthing, and Henley-on-Thames.

The Marquis de Mouzilly St. Mars has kindly consented again to accept the presidency of the club.

The annual subscription is 7s. 6d., with entrance fee of 2s. 6d., and the hon. sec., H. C. King, Walton House, Surbiton Road, Kingston-on-Thames, will be pleased to hear from intending members.

Birmingham M.C.C.

This club held its first competition in 1908 on Rose Hill on Saturday last, in glorious May weather. The course was lined from end to end with spectators, and it was estimated there were over 150 motor cyclists through Rednall on Saturday afternoon. Electrical timing was used, this being in the hands of Mr. R. V. C. Brook, trials hon. sec., and Mr. J. Thompson. Mr. Duke, captain, was starter at Longbridge. Results.

CLASS B.—Machines with single cylinders of any capacity. Fastest time, R. Samson, 3½ h.p. L.M.C.
Order of merit on formula.

		F.M.
1.	R. Samson (3½ h.p. L.M.C.)	640
2.	F. G. Sandison (3½ h.p Triumph)	629
3.	F. C. Mustard (3½ h.p. Triumph)	624
4.	A. M. Lomax (3½ h.p. Triumph)	600
5.	E. W. Winckle (2 h.p. Clément)	340
6.	A. E. Willy (3½ h.p. Brown)	184

CLASS C.—Machines with twin-cylinders of any size.
Fastest time, H. C. Rapier (5 h.p. N.S.U.).
Order of merit on formula.

		F.M.
1.	Seymour-Smith (5 h.p. Norton)	458
2.	D. Royce (5. h.p. Norton)	424
3.	H. C. Rapier (5 h.p. N.S.U.)	412
4.	F. Southam (5 h.p. Vindec)	352
5.	W. Pillington	336

[Owing to great pressure on our news pages several items of club news are unavoidably held over.—ED.]

Extract from "The Motor Cycle" of March 25th, 2008.

INTERESTING DISCOVERY IN THE W. LONDON.

[*From a Correspondent.*]

"An interesting relic has been overed in the suburb of Kingston, ondon, W., believed to date from the arly years of the twentieth century. he accompanying telepathotograph (repro-uced) may prove of interest to your aders.

"In the interests of our readers we have ubmitted a print to the deputy-vice-assist-nt-sub-editor of the current 'Times History f the World.' [See advertisement supple-ent pages 3-301.] We quote his report erbatim. 'Apparently,' writes Mr. Auto lobel, 'it represents the apotheosis of a olice constable of the period. Colour is nt to this supposition by the locality of s discovery. It is a well-known fact Or should be (See pp. 84-1001½ "T.H. the W.")—ADVT.] that the authorities of his district held the "Genus Constabu-re" in reverent esteem and awe. He as worshipped under the titles of "The Jnimpeachable," "The Well of Truth," c., etc. A well-known witty magistrate f the period is reported to have spoken of im as follows: "He is always to be found his George Washington Post." (Laughter, which the police were conspicuous.)

[P. 101.—Advt.] In assigning an exact date to this undoubted antique considerable difficulty arises. During the first decade of the past century numerous associations and unions formed for the purpose exposed the cult of the constable as a degrading and effete superstition. This, then, may be either (*a*) a memorial window erected by a few surviving members of the faith, or (*b*) erected in jubilation during the more enthusiastic period of the cult. Of these the latter is more probable. "Sanctus Robertus" is represented in a triumphing attitude. In his left hand the stop-watch (a crude mechanical fetish which the naive craftsman of this date has represented resembling rather a barometer), in his right hand what is apparently a tape measure. His right foot is placed upon a bag containing money (no doubt fines), under which is seen a quaint little figure, presumably the motorist of that date in process of being crushed beneath their weight. With regard to the symbol XXX following the title, I can offer no explanation.'"

[Possibly this last is intended to signify the nectar, as it were, which, it was commonly supposed, was the reward of all successful constables. In this connection it would represent, therefore, a brand of ale.—ED.]

O, Love it is a funny thing,
It tickles poets in the spring,
It caused young Robinson to bring
His girl out in a trailer.

The way was short, the rider bold,
The motor was by no means old;
So fast the merry miles unrolled
Behind the girlful trailer.

"Now hold on tight, O girl of mine,
I'm going to shave this corner fine,
Off S. F. Edge I'll take the shine!"
A squeal came from the trailer!

He heeded not, but on he tore,
And even faster than before,
Until at length by Brighton's shore,
He pulled up with the trailer.

The sun fades sudden from his sky;
With pallid face and ruffled tie
He gazes with a frenzied eye
Upon an empty trailer.

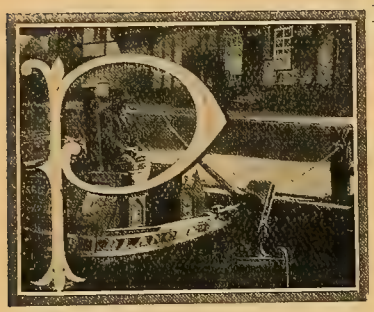
* * * * *

No more will Robinson be seen,
To mote with his affection's queen.
And advertised you'll note: "Machine
For sale, complete with trailer."

MORAL: Have a sidecar! —H. R. T.

Meet of South African motorists on the occasion of the first run of the East London and Border A.C. The hon. sec. *pro tem.* Mr. H. Barnes, is seen standing to the right of the sidecar with a Quadrant Motor Bicycle. *Photograph by J. Knibbs.*

Photography and Motor Cycling.



PHOTOGRAPHY is now so popular a pastime that it needs but little excuse to write of it in its particular applications to the needs of the motor cyclist. Considerations of weight and space are so important in this connection that it may often happen that the rider who would carry his camera is prevented, or thinks he is prevented, from doing so because his camera may be too bulky or he may have no convenient method of attachment to his machine. The serious photographer with aspirations towards art will probably prefer a three-wheeler or a small car for the convenient transportation of his impedimenta, but the motor bicyclist, who is not always in a hurry, finds photography, especially when on tour, a very pleasant side issue to the main pastime.

It is to illustrate this point that I have asked the Editor to use a restful little hand camera picture made at Tewkesbury on one of many delightful little holidays on wheels as a beginning to these jottings.

Naturally, the first question which occurs to one is, What camera shall I use? And the answer is that the instrument with which the photographer is most conversant will give the most satisfactory results, if for no other reason than that motoring photography is hardly the deliberate occupation of the serious picture-maker, but partakes more of the reminiscence or snap order of things. If, therefore, the motor cyclist is the possessor of a box form hand camera, with which he has been accustomed to work, and he wants to use that on his travels, some such little device as is shown in fig. 1 will be useful. Here the rider is represented as carrying the camera, which is a box form magazine camera, on his back, the suspending device being made of light brown webbing to match the coat, and so devised as to distribute the weight and pull evenly between the two shoulders, with no interference with the chest or breathing department. The webbing arrangement complete costs about 5s., only weighs a few ounces, and is called a Camsac, and can be purchased at Fallowfield's, in Charing Cross Road, and possibly elsewhere. It may be noted here that one of the things which trouble the motor cycle photographer is dust and dirt on the plates caused by vibration, and, of course, actual dust upon the road. As regards the vibration trouble, there is no doubt that the best way to minimise this trouble is to carry the camera on the person, and, personally, I think the method just described is the least inconvenient way.

An alternative method, if a folding camera is available, is to carry it in a leather case, as shown in the illustration on page 360. Carried in this way, a roll film camera is very convenient, and can be quickly got into action, and as expeditiously limbered up again. With a spare roll or two in one's pocket or toolbag, a large number of exposures can be made. The box camera presupposed the use of glass plates; the folding camera involves the use of films, which are

Fig. 1.—A magazine camera suspended from the shoulders by means of a Camsac.

Fig. 3.—Another method of carrying the photographic outfit which can be highly recommended.

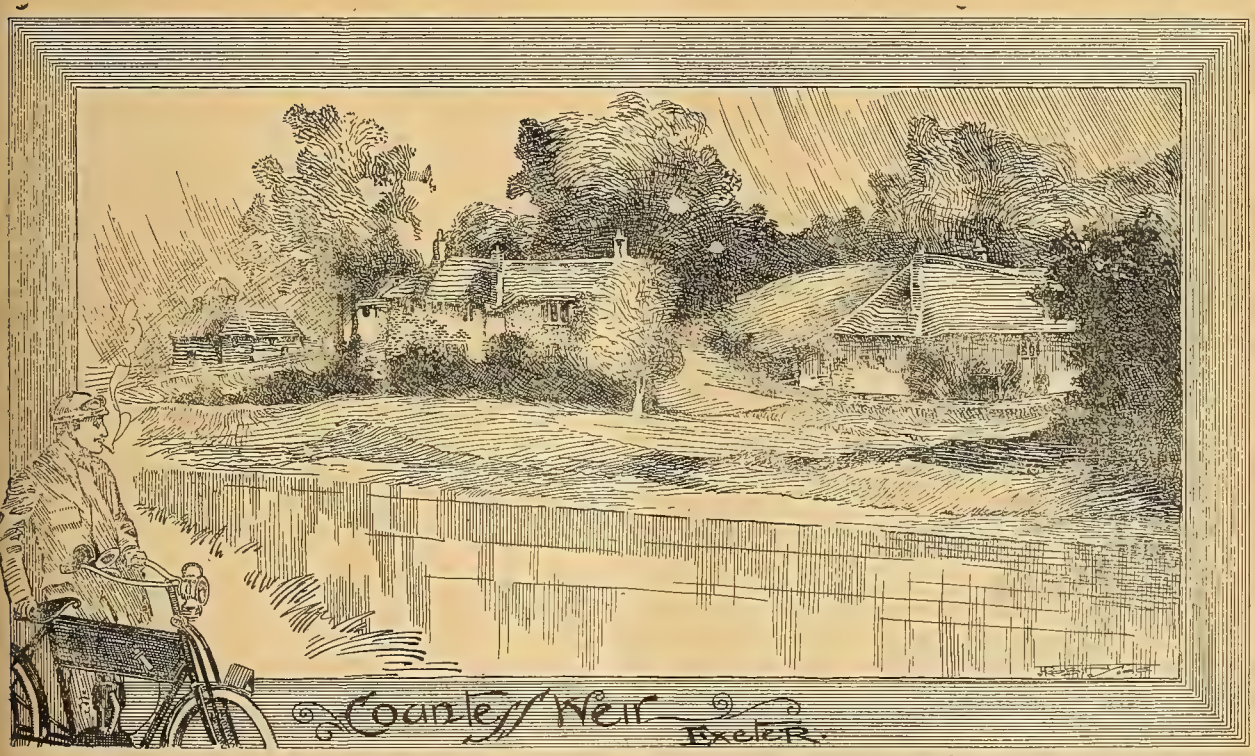
Photography and Motor Cycling.—

however, now made fairly reliable in quality.

But, it may be said, why not be a serious photographer, and use a stand camera? Well, in that case any attempt to carry the camera and stand upon the person would be irksome, and I know no other method than to pack them upon the carrier, as indicated in fig. 4. In this case, to minimise the effects of vibration as far as possible, it is advisable to pack the camera in a cover of some kind. For this purpose, a leather or pegamoid case should be selected, but somewhat larger than the camera, which should be wrapped tightly round with some soft material. One or more velvet focussing cloths will do, or any material which will act efficiently as a buffer to absorb the road vibrations. It is important that the camera so enveloped in its cloths should be tightly held in the outside case, which in its turn should be very tightly strapped to the carrier. For this purpose, pieces of webbing fitted with buckles are better than leather straps. One more precaution is advisable, viz., to ride with the back tyre as soft as possible; in fact, use every possible device to make the running of the motor cycle as easy as possible. There is an adage which says that if you want a thing well done, do it yourself. I would not like to dogmatise on this subject, but an enthusiast of my acquaintance has assured me that in this connection there is a better way, and to illustrate his method of combining the interests of photography and motor cycling he has sent me the photograph from which fig. 3 was made, which represents the method of carrying the apparatus which he finds least irksome.

AN 409.

Fig. 4.—A camera and telescopic stand packed tightly on the carrier of a 2½ h.p. Rover Motor Bicycle.



How The New Mount Scored.

LEONARD GORDON felt particularly pleased as he read the note from his agent, "Am expecting delivery of your new motor bicycle to-morrow." Visions of pleasant runs and a good time at the coming Whitsuntide holidays filled his mind. Next day, as soon as he was free, he went down to the shop. There, surrounded by the litter of its crating, stood his new twin-cylinder mount, upon which he had spent so much consideration and thought. There was no doubt it looked a regular beauty, with every promise of speed and comfort. He felt pleased with his judgment. Power for the hills in which the district abounded was certainly there. More especially to the farm on the moorlands would this be useful, a route which he often took. The glorious view was by no means the only attraction of this wild and somewhat desolate spot. Leonard Gordon's heart told him that Kitty Lloyd was worth many a good mile to go and see. He was always welcome at Moor Farm. Mr. Lloyd was a pleasant man, but there was one thing that he certainly was—an anti-motorist. Often had Leonard listened to his diatribes. Tactfully he avoided arguing the subject with him. Generally he was able to lead the conversation into pleasanter and safer channels. Diplomacy in this respect, coupled with the newspapers and local news which he took with him, helped to keep them on a friendly footing.

The First Ride.

The following day, being a half-holiday, offered an early opportunity for trying his new mount. After carefully examining the machine to see that all nuts were tight, testing brakes, and trying the machine on the stand, he took it on the road. Soon he was flying along, with ignition advanced, his intention being to combine the trip with a visit to Moor Farm. In a very short time he was in sight of the long hill which led up to the moorlands. He pressed down the plunger of the oil pump for the extra benefit of his new engine, and took things easy—wp-wp-wp, a two miles hill, and an engine well up to its work. The bright sunlight, the welcome signs of summer, and Kitty watching for his arrival. Leonard Gordon was indeed a lucky man. The brow of the hill was topped without the motor faltering, and a flat smooth road stretched out in front of him as far as the eye could see. With the ignition lever well forward and the throttle half open he was able to get plenty of speed, and the regular beat of the engine was pleasant to hear. Then he saw a neat, trim figure standing on the low, rough stone wall, looking in his direction. Opening the throttle still wider he was quickly alongside once again with Kitty. After affectionate greeting, Kitty's eyes wandered to the new machine. Yes, she certainly liked the colour of the paint, and all the plating looked beautifully shiny. Leonard Gordon smiled. He hoped to make her more appreciative before long. A sidecar for Kitty, and a long day's run down to the coast and back in the coming Whitsun was his programme. This he told her as they strolled back to the farm, after putting his bicycle in the barton. "Nothing could be nicer," said Kitty, "but how about father?" Leonard felt the force of the remark, but concealed it as much as he could. It was decidedly awkward. Her father must be kept good humoured. Before leaving, he managed to make a compromise with Kitty that next time he came they would make a short trip on the sidecar.

An Awkward Dilemma.

Gradually the following week passed by. Kitty was at the appointed meeting place. Seated in the sidecar, she was soon enjoying the sensations of a first motor trip. The Fates were, however, against them. On coming to a cross-way they met none other than Mr. Lloyd driving his horse and trap. Mr. Lloyd's mood was of the dangerously quiet type. He merely said he thought Kitty had better get up with him, as he was going straight home, and that they might possibly see Mr. Gordon on some future occasion. Leonard saw there was absolutely no real ground for controversy. Kitty looked pale as she got into the trap, and they drove off. Leonard felt rather small as he returned home. There was no way of doubting Mr. Lloyd's tone and manner. Opposition being the first stimulant for increasing affection, it naturally followed that they felt more than ever attached to each other. The postmen were regular callers at each of their homes. Kitty cycled over to the brow of the hill leading from the moorlands, and Leonard met her there. He had the sidecar still attached, but they both had too much to say to think of riding for some time. After a while they were disturbed by the sound of a galloping horse. The sound was peculiarly irregular, as if the horse was lame. Sure enough this was the case. Leonard then recognised one of the farm servants. Quickly going up to the man, he soon found the reason for his haste. Mr. Lloyd had dropped unconscious at the farm, and he was going for the doctor. He did not know how soon he would get there. The horse had gone dead lame. Quickly explaining matters to Kitty, he tied the horse to a gate, put the man in the sidecar, and they were seen speeding down the hill. Fortunately, the doctor was at home, and Leonard took him to Moor Farm in record time.

Mr. Lloyd is well again now. The doctor said his being able to attend him so promptly saved his life. The farmer's views on motors are decidedly modified. Best of all, he is quite reconciled to Leonard as a future son-in-law.

MONTAGU GREENWOOD.

The Motor Cycle and the Variety Stage.

HE motor cycle is used a good deal by music hall artistes both for business and pleasure. I may as well state at the commencement of this, my first article, that I am a music hall artiste and an enthusiastic motor cyclist, with the fever jolly bad, too. Not a line of *The Motor Cycle* I miss every Wednesday. A friend some time ago allowed me to try his motor cycle, and I at once decided I st have one of my own. But for a start I wanted ıething cheap to practise on. I eventually invested a 3¼ h.p. surface carburetter Rex fitted with a mo forecarriage and front wheel to convert it into a ycle. I got the whole lot for £14, although £25 ıld not have stopped me from buying it, as I had the slightest idea of the value, only that I knew tyres were worth about £8, consisting of three mer corded and one Dunlop. Mighty proud I of my first motor cycle. I was performing at mingham at the time of buying this machine. The ner owner explained to me the working of the levers, me a spin round, and then left me with the tricar.

My First Run.

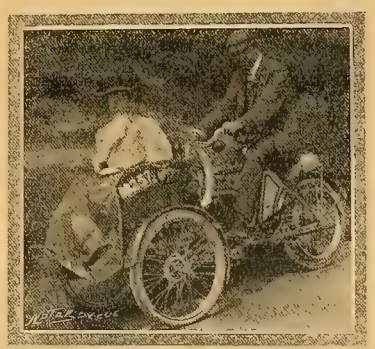
For the first run I arranged to take my sister r to Leicester, so at eight o'clock next morning started off, the motor going finely. The troubles his first trip I never shall forget. The machine ıt well for the first ten miles, when the valve lifter ke. I tied that up with string, and then the or would stop short if I advanced the spark. wever, we got within a mile of Leicester, when the ine stopped again, so I got off and started to mine it as if I had been used to motoring all my —just to impress the crowd that had collected. I spered to my passenger to go and see her people in cester, and then train back to Birmingham. She ked surprised, but went.

then had a look at the coil, and touched the nbler blade at the same time, and got a shock that t me sprawling backwards amongst the crowd, id screams of laughter. Just then a young man ne up with a look of business about him. "What's ?" he asked. Of course, I couldn't tell him, so ooked the motor over, touched this and opened that, ked the wires over, and at the finish said, "These tors always go better with petrol." What a fool as. I found a garage, filled the tank, and started k without the passenger. As the engine was not ling very well, I made for the Rex Works at ventry, and then rushed to the station in time to ch a train to Birmingham, which just got me there time to perform at the Empire. That night I nitted that the motor had mastered me. I returned Coventry next morning, and asked the Rex Company show me every test that a motor was put to when it ıld not go, and also why mine ran irregularly.

Taught Motor Cycling by a Boy.

They told off a boy about seventeen to put me right. He found out in a minute that the contact screw wanted adjusting, and that was the tiny thing that had given me all the trouble. I have to thank that boy for a lot. He taught me how to test the sparking plug, how to adjust a trembler coil, how to wire motor, how to keep terminals clean, how to grind valves, and the rest I learnt myself very quickly. My next journey was from Birmingham to London. I got along finely as far as Stony Stratford, when there was a bang, and the pulley would not move. The local garage proprietor I found to be one of the quickest workmen I ever struck. He took the engine to pieces, found gudgeon pin had come out, fixed it up, and retimed engine, all within an hour and a half, and when I started again the motor had a great deal more power. I then came to the conclusion that I had a good motor and a bargain. Having the following week vacant, I took my boy and girl three or four rides, but I could not persuade my wife to sit in the forecarriage, she being a nervous and very delicate woman. I knew that if I could once get her into motoring the saving in doctor's bills would pay for all the petrol.

My next engagement was at Edinburgh, so I made up my mind to leave London on Friday (April 19th, 1907), and get to Edinburgh on Sunday. I took the forecarriage off for this run. Starting at 11.30 a.m., I arrived at Newark at 7.30 p.m., after a splendid run. I took the accumulator to a garage to be charged, and was recognised by the attendants, one or two having seen me perform at the Empire, Nottingham. They found me a comfortable hotel, and I was shown over the beautiful old-fashioned town of Newark. Next day I started at 9.30, and arrived in Newcastle-on-Tyne at 6.30 the same evening.



On the Mumbles, Swansea. The Rex machine with forecar attached.

I met my two partners at Newcastle; one had bought an up-to-date Rex, the other a 3½ h.p. magneto N.S.U. We arranged to travel together to Edinburgh, and started on Sunday morning. It was a fine day, and we enjoyed the run, but we could not keep together, owing to tyre troubles. Then a trembler coil went wrong. Poor me, having had a couple of weeks' experience, I had to take off my coat and do all the work. My old Rex was going great guns, so was the N.S.U. Once I stopped to shorten my belt, and then started to catch them up. But it seems that after I had stopped the others waited a little further up the road, and I never saw them at the roadside, although they yelled at me. I arrived in Edinburgh at dusk, the others a little later.

The Motor Cycle and the Variety Stage.—

I have not mentioned the beautiful country towns and sea views, as this same trip has been described in *The Motor Cycle* before. My idea is to show what a grand time one can have with a motor cycle if the rider spends a few hours learning all about it.

Our next ride was from Holyhead to Liverpool, my partner with his magneto N.S.U. and myself on the

The writer, Percy Delevine, with his Rex Motor Bicycle.

Rex. After leaving the boat at Holyhead we covered the first fifty miles in two hours, including a stoppage on the Menai Bridge, and keeping to the coast road all through Wales. Then we came to a long straight stretch of road, and had a fair race, but the N.S.U. was very slightly faster than my machine, which, after all, was only a cheap three-year old. We arrived in Liverpool that evening at seven o'clock, and when I got to my apartments, who should be there but George Hackenschmidt. When he saw me he vowed he had never seen anyone look more healthy and well than I looked. We talked motors and sparking plugs, magnetos and coils, and roads until ten at night. He made up his mind to get a motor cycle after seeing me that night. If he has done so I cannot say.

Motor Cycling Improves the Health.

Our next rides were Liverpool to Bradford, Walsall, and London. Now comes the greatest thing motor cycling has done. I got my wife to ride in the forecarriage on the strict understanding that I went very slowly. I took her forty miles, and the last five miles she turned round and asked me to go a bit quicker. Needless to say, she enjoyed it thoroughly, and started with me from London for Cardiff last July. We left London at six o'clock in the morning, had breakfast in Oxford, lunch in Gloucester, and tea in Newnham. Some of the hills I met on this journey were very stiff. I had to get up as far as I could with my passenger, and let her get out and walk the rest; then I had to go back and charge up as fast as I could, and then pedal. My wife had four square meals that day—a thing that had not happened for many months. She weighed 6 st. 6 lbs. when we left London. From Cardiff we visited the following towns: Swansea, Newport, Nottingham, Leiceste Manchester, and the Peak of Derbyshire. On the la five journeys we were accompanied by Arthur Lenna and his wife on their 8 h.p. Rover car, and had not taken my wife on his car up the Peak I don't thir I should have ever got through the journey, having change of gear. Besides the journeys mentioned, all went out together nearly every day, dining in t country and returning in time for the performance night. Now my reason for writing these experienc is this: I have had my motor cycle called an old 'bu a wreck—in fact, everything that a motor could called—but if a motor cycle of any good make bought and it does not give satisfaction, it is near always the driver's fault, not the motor's. The tri described have been to my wife and self the pleasant we have ever had, and, although we have been all o the world together, we never knew what a beautif country our own was until we started motor cyclin After seven weeks on the road my wife put on twel pounds in weight, and as for being nervous or delica that's all passed. The fresh air cured her after bei ill for over three years. This may sound like a pat medicine advertisement, but, for all that, it's tr In conclusion, let me state why I always finish journeys without much trouble. I always spe Saturday oiling the motor, dressing the belts, cha ing accumulator, examining the tyres, and seeing t everything is right for the week-end. Sometimes cover 200 miles on the Sunday, and I have ne had my engine overheat. I always lift the exha valve when descending hills. I also use a great d more engine oil than other riders, and drain out crank case at frequent intervals. I carry a spare ty spare tube, inlet and exhaust valves—in fact, I le nothing to chance. I have a Roc clutch fitted n and I used it for the first time on Boat Race D

Some music-hall stars at Raglan Castle, Monmouthshire. Miss M. Delevin Harry and Percy Delevine, and Mr. and Mrs. Arthur Lennard.

when I rode from the London Coliseum to Streatha and I found it a great boon in the thick traffic. Wit clutch the sensation of a car is there, if the bulk a expense are not.

PERCY DELEVINE

QUESTION & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not **must be accompanied with a stamped addressed envelope for reply.**

Paraffin Lamps on Motor Cycles.

Kindly tell me how to prevent my paraffin lamp going out every two or three minutes? A motoring friend has suggested putting a piece of cotton wool in the oil reservoir. Would this be any use? The lamp is a large one and sold for motor cycles, but although on a spring lamp bracket it goes out with annoying persistency every quarter of a mile, or even less.—H.H.B.

We are sorry we cannot help you, as we do not know a single paraffin lamp which is any use at all on a motor bicycle. Probably it is designed wrongly altogether, and will not stand a side draught.

Magneto Refuses to Spark.

I have a Rex Modèle de Luxe. At the beginning of last month the magneto failed entirely. I examined and tested it, but could get no spark, so I sent it away for repair. The front end plate was rebushed, magnets remagnetised, and the whole cleaned. It ran the engine all right when I put it on, but the moment the clutch was put in it refused to fire the charge, and after adjusting and trying for about half an hour it refused to spark at all. Plugs, cables, etc., are all in order. It seems to me it ought not to have required rebushing or remagnetising for the little work it has done. Kindly advise what is best to do with it.—Rev. H.N.

Trouble with a magneto is extremely rare, and we are inclined to think that in your particular case it may have been due to there having been something wrong with the transmission. For instance, if the chain was too tight, or was out of line, or the sprockets were damaged, it would have put an unfair strain upon the bush, and have worn it out quickly. We should, therefore, advise you to carefully look to these points. Exactly what is the matter with the magneto at the present time is hard to say, but probably there is a short circuit somewhere which can be found if you search for it carefully. Do not attempt to remove the armature. If the trouble is not evident you had better send the magneto to the makers, who will put it in order for you.

Magneto Switches.

I have a 1907 magneto Triumph, and have fitted a switch on handle-bar and fixed the wire to the screw on terminal block (15). The switch does not act. Will you please tell me if I have wired correctly, or how is it this will not put the magneto out of action?—W.M.

As far as we can tell your switch is correctly fitted up. Possibly, however, a clean form of contact is not made. You must remember that you are dealing with a low tension current. Also bear in mind that the switch short circuits the magneto, that is to say, when the wire is connected by means of a switch to the handle-bar the magneto is put out of action.

A.C.U. Quarterly Trials last week. Ready for the start.

Valve Cap Joints.

Can you give me any hints for making a really tight joint with the valve caps on my twin Minerva machine? I have tried ordinary washers, and added asbestos string and boiled oil to them, and tried the latter alone, and tried brown paper and gold size. The latter was excellent for fifty miles, but then turned to powder in spite of repeated adjustments of the cap. I can use considerable force on this machine to disengage the caps, so am not frightened of anything on account of the difficulty of getting them off again.—W.S.S.

A valve cap which is not gastight with one washer will often become so if two washers are used and the cap is tightly screwed up. Failing this, it is not a bad plan to apply fish glue round the edges. If the two faces are perfectly true and clean, a compression tight joint can be obtained without any washers at all.

Climbing Hills without Rushing.

I have some very nasty hills to mount to reach home, and must always reduce speed immediately before taking them on account of sharp corners. Partial valve lifting is bad for engine, and switching off is a strain on engine in restarting. Would you think it best to retard spark, and on rounding corner to give full advance and more gas? I ask this, as I do not know the effect on the engine of a sudden advance of spark starting uphill. In driving I am usually careful to advance gradually.—H.E.S.

If you do not care to use the valve lifter when slowing down on turning a corner, you had better close the throttle and then open it again when you have negotiated the corner. Apparently, you use accumulator ignition. If you advance the spark suddenly while ascending a hill, it is possible that you may damage the engine. In any case, it is sure to cause knocking and stop the engine.

. . The Motor Cycle for Business . .

By BAGMAN.

THE motor cycle is so often regarded as a purely pleasure vehicle that its utility for business purposes is in some quarters overlooked. Having used a motor cycle for the past six years in my rounds as a commercial traveller for Components, Ltd., I now find it an absolute necessity if I am to keep up my returns. My business requiring calls at country towns, and even villages, and only necessitating a short stay in the majority of them, it is of great importance that I should be able to call on a large number of customers per day. This is where the motor cycle scores.

A Typical Day.

Many of your readers are doubtless acquainted with Wales, and are aware that the train service in those parts does not err on the side of plurality of trains. The following example will show how the motor cycle beats the train: Leaving Chester by train at 9.15 a.m., you reach Buckley (a rising colliery district) at 9.48. The station is some distance from the town, hence it is impossible to catch the 10.50 out, so one must needs wait for the 1.15 p.m.; this brings you into Mold at 1.25. Now to reach the coast it is necessary to go back to Chester, which you reach at 4.45—too late to attempt to arrive at any of the coast towns in time for business.

"Bagman" Mr. R. T. Harman seated on his 2¼ h.p. Ariel Motor Cycle, which he uses on all his business journeys.

Compare the above with a journey by motor cycle. Buckley is reached soon after nine. Mold is only a short distance by road, and after working Mold I can get across to Connah's Quay; from there to Flint, Bagillt, Holywell, Prestatyn, and Rhyl. Total by rail two towns, by motor cycle eight, practically saving two days on this short journey alone.

Space does not allow of detailed particulars of other journeys, but your readers can readily see on reference to any but the main line trains of the leading companies that this is a day typical of many others.

Now as to the machine. All my journeys have been done on an Ariel, and after trial of several types my choice for this year is a 2½ h.p. lightweight fitted with magneto ignition and spring forks, and my experience so far is that I have a machine capable of any work to which I put it. Being light, it is easily handled, and the power is sufficient to climb any hill one meets on the main roads without pedal assistance.

Dress.

One of the disadvantages that is urged against the use of a motor cycle for business purposes is that one is apt to become bespattered with dust, mud, or oil. I have found, however, that by using a light rainproof suit of overalls, which can be easily slipped off when a town is reached, one can present quite as well-groomed an appearance as if one had travelled by rail.

Reliability

I have used a motor cycle for business purposes for six years, and only on one occasion have I had a breakdown which necessitated returning the cycle to the works, and this was entirely due to my neglect in not attending to lubrication.

Expense.

A carefully kept record has convinced me that the cost of travelling by motor cycle is just about one-third the cost of travelling by rail, and therefore not only can one save two-thirds on the railway fare, but it has also to be remembered that the motor cycle is a great economiser of time.

One of the chief points that a traveller by motor cycle has to study is to make himself thoroughly acquainted with the mechanism of his machine, and if he rides an up-to-date, well-found model this should present no particular difficulty.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Unattached Riders.

[3287.]—I shall be very pleased to send anyone desirous joining a club particulars of the Brighton and District otor Cycling Club. We offer what so many people, judging letters in *The Motor Cycle*, seem to want—all the advanges of affiliation at a nominal subscription. Perhaps Mr. itzgerald or any of his friends who may be seriously conidering the matter will kindly apply to me.

HAROLD CLIFTON,
Hon. sec. Brighton and District M.C.C.

[3288.]—I feel compelled to write you on the subject of ie A.C.U. for unattached riders. Myself, and at least half dozen motor cycling friends, would only be too willing to ecome attached for a nominal sum of say, 5s. per annum, ot that we want to participate in all its benefits, but because e believe that unity is strength, and the more powerful the .C.U. becomes the better we shall be looked after in future om the authorities. We have neither the time nor the inclinaion to join or form a club and become affiliated.

I wish it were possible for you to insert a coupon in *The lotor Cycle* asking who would be willing to become attached t 5s. per annum to the A.C.U., the coupons to be filled in nd sent to you. The A.C.U. would then very soon see what he great majority of motor cyclists thought on the subject. t will be a great pity if the C.T.C. takes this large majority.

W. A. SANSOM.

Electric Head Lamps.

[3289.]—Seeing a question in *The Motor Cycle* of the 22nd lt. asking about electric lamps for motor cycles, I thought might interest some of your readers to hear of my experince with an electric headlight. I had always an idea that he filament in an electric lamp would break with the vibraion, but seeing an advertisement in your paper of a "Glare" eadlight, I decided to try one, as it was not much to lose the thing did not act. I must say I did not expect to get nuch light, seeing that it was only using ½-ampère, but hought it would be an advantage, as I wanted to run it rom my ignition accumulator. However, I was more than urprised with the result, and during the recent holiday have un from Blackpool to Cleckheaton in the dark, and in my pinion the lamp is excellent. I did not think it possible to et the amount of light from such a small consumption of urrent.

H. BLACKBURN.

Lightweights in the End-to-end.

[3290.]—With reference to letter No. 3224 in your issue f April 8th, one is pleased to find a gentleman with such a porting spirit as your correspondent coming forward. I doubt, nowever, if he has ever been over the ground, otherwise 'Ixion's" remarks would carry more weight. I would be he last to cavil at his pluck, but to maintain the minimum peed of fifteen miles per hour will take some doing on a lightveight.

As a rider of a Fairy—a similar machine, of lower power—I intend entering for the historical event, but, having a previous experience of the course, and the class of roads and weather likely to be encountered, I do not say that the ightweight will not be able to maintain the speed limit, but I do consider it will take some doing, and I trust "W. W. D." will be able to prove the correctness of his ideas by actual results. I for one shall look forward to a large entry of lightweights, and all praise to the men who get through.

R. J. GETTING.

A Satisfied Owner of a Twin.

[3291.]—As a possessor of a 5 h.p. twin motor cycle, may I also be allowed to state a few facts concerning the same? Having ridden since last May well over 10,000 miles, I was compelled through sheer curiosity to dismantle the engine, and found everything in as good condition as if I had only been 10,000 yards. The most serious trouble I ever had was a broken mudguard stay. All brakes were in splendid order. The timing wheels and cams were beginning to look as if they might some day show signs of getting polished. I give one pumpful of oil every twenty miles. It is known as S.E. oil. I do not know who makes it, but I get it from the Addison Motor Co., of Liverpool.

I have climbed Shap with a 3 to 1 gear after a non-stop run from Lancaster. I shall never go back to a single cylinder.

REX 1906.

Sidecars.

[3292.]—Many very interesting letters have of late appeared in *The Motor Cycle* respecting the design and general handiness of the several patterns of sidecars now on the market, but no mention appears to have been made of the wearing qualities of tyres, and I feel sure the method of attachment to the cycle and design of the sidecar wheel must have some bearing on the subject.

I use a Montgomery sidecar attached to a twin Rex de Luxe, and since September last have run it about 1,700 miles.

The tyre, a 2½in. ordinary Continental, is now worn to the canvas evenly all the way round. The steering of the combination, both with and without a passenger, has always been easy, proving that the sidecar has been correctly attached to the machine, and no wear could have taken place through the wheels being out of alignment. It would be interesting if other sidecar users would give their experiences, as it is an important point in the upkeep of the combination.

J. F. POOLEY.

Overheating.

[3293.]—I have followed the discussion on overheating in your columns with great interest, and I think all really practical motor cyclists share the same opinion as expressed by your correspondent R. W. Ayton.

The engine may be excessively hot, but if you can keep up the piston speed, and the lubrication does not fail—which it seldom does—the effects of preignition will not be felt. But immediately the piston speed falls below a certain point that awful clank commences, as though the top of the piston were being struck with a hammer, which is literally the case.

Users of two-speed gears have ample proof of this. A hill a mile long or more may be climbed successfully on the low gear; but try to get into your top gear on the remaining part of the rise, however slight, and you will fail, whereas it is easily done on the descent, due, no doubt, to slightly increased cooling effect, but chiefly to increased piston speed.

Your correspondent, R. W. Ayton, has put the case very clearly, and should dispose of the question for all time.

By the way, I wonder if this gentleman is the same person to whom I introduced myself on the 14th July, 1894, at Hunningham in the middle of the river, when, at the moment of introduction, he had three feet of water above his head and about six feet of ditto under his feet? The date is correct, as shown by the Humane Society's medal. I have never seen this gentleman from that day to this; but I think by the initials it must be the same person. Anyway, I am pleased to have been of service to such an able correspondent, for, had I not been on the spot at the moment, the motor cycling world would have been the loser.

T. SLAUGHTER.

Gudgeon Pin Fastenings.

[3294.]—Talking about experiences with gudgeon pin set-screws, I had a 2¾ h.p. Stevens engined machine some years ago, and one of the screws came out and was jammed between the connecting rod and top of crankcase, thereby causing engine to seize and me to come a cropper. With all my later machines, if fitted with these screws, I take them out, and remove gudgeon pin, and hammer one end of pin on anvil, thus making it uneven. I then drive it into the piston. I have never had any trouble with a pin so treated.

DOUGLAS H. DELANY.

The Blind Leading the Blind.

[3295.]—"Subscriber" in your last issue [letter 3272] takes Mr. Ponting to task because of a statement he makes in his article, "An Easter Morning Ride."

Possibly Mr. Ponting, when he states "And numerous moles which can run very fast when they see the light of a motor cycle coming their way," really meant to say voles, as it is very unlikely that he would see a quantity of moles, but very likely that he might see numerous voles.

Nevertheless, "Subscriber" falls into a very popular error when he states that the moles in his district are quite blind. Moles are not blind, but are furnished with very small eyes which have the power of vision. These eyes are covered or surrounded with fine fur, which causes them to be overlooked by casual observers. The animal has, however, the power to radiate this fur from the eyes. If "Subscriber" will carefully examine the next mole he sees he can satisfy himself as to the correctness of my statement. R. FORTUNE.

The Motor Cyclist's Ideal.

[3296.]—Seeing the discussion in your valuable paper anent the ideal motor cycle, I venture to think that the following specification would be of interest to your readers: Built upon the lines of the four-cylinder F.N. with a disc metal to metal clutch, and a three speed gear similar to Oppermann (which is practically foolproof), m.o.i.v., magneto, hand starting, 20in. frame, footboards, Brooks pan seat, handlebar control, and such refinements as rubber studded tyres, petrol filter, gauge, etc.

Such a machine is of course not in existence, but would I think, if built, have the following points: Absolute lack of vibration, about four to fifty miles an hour speed, perfect ease of control in traffic, ability to climb any hill, and elimination of transmission troubles. The wear and tear of the whole machine would be very little.

I should be pleased to hear readers' opinions upon the above, as I think of having a machine built upon the same lines, and there may be some fault in the above specification which has escaped my theoretical notice.

I have read your paper for two years now, and look forward to Wednesday morning with a joyful anticipation, as I have always found it an immense help to me.

NIRVANA.

Brooklands Racing and Other Items.

[3297.]—In looking through some back numbers of *The Motor Cycle*, I came across a paragraph wherein a contributor suggests that a match between the two 16-20 h.p. machines exhibited at the last Stanley Show would be interesting. You agree, but remark that it would be the better plan to first find a suitable track on which to let the machines out. Surely, now that Brooklands is open to motor cycles, this would be the ideal spot, and track is no longer the obstacle.

In your issue of November 13th, 1907, there is a paragraph headed, "A New Point of Police Trap Law," which says that "police trappers must stop a car or cycle that exceeds the speed limit," and further, that "two cases against motorists for exceeding the legal limit on the Maidstone Road were dismissed on these grounds, the police, it is stated, being unable to stop the cars." In connection with this, I wish to remark that I saw in a daily paper a paragraph which says that the Sussex police are trying a new dodge to supersede the old "trap." A number of constables are stationed at various points along the main roads with a stop-watch and notebook, and simply jot down the number of every car that passes, and the time. These figures are sent to the chief constable of the county, and are then tabulated and compared, and proceedings taken against the drivers of those cars which are found to have exceeded the speed limit. A large crop of summonses are expected as a result of the experimental trials of this scheme on the Brighton Road during the recent holiday.

Now surely such proceedings cannot be legal in face of the interpretation of the law previously quoted, and taking the two cases against the motorists on the Maidstone Road as precedent would be good grounds for the defence of any unfortunate motorist who receives a summons as a result of this new system of persecution on the part of the police.

In the issue of April 22nd, 1908, I notice "A.H.W." (Canterbury) asks for information about electric lamps. I agree with your reply, and would like to add my experience. The filament of all electric bulbs is extremely delicate, both in the cold and in the incandescent state, and therefore the lamp should be sprung like an ordinary cycle lamp. A spare bulb must be carried, and this should be kept packed round lightly with cotton-wool in a box, to insulate it from vibration. If these precautions are not taken the filament will seldom last long over any ordinary road. Personally, I carried a spare as I was well aware beforehand of the delicate nature of these lamps. Although I never had occasion to use either of the spares, the filament soon proved its reputation by falling over sideways through vibration the first time the lamp was used. I used it for some five or six night rides of two to three hours each, and several other short rides of from a quarter to half an hour each. I have now discarded the arrangement in favour of acetylene for the following reasons: Filament too delicate to be reliable; light not good enough; bother and worry of having extra accumulators to keep charged.

W. SMITH.

Motor Cycling in Kumasi.

[3298.]—I have finally decided to get a motor bicycle out here to be used in connection with my business. It is necessary for me to make speedy excursions to different villages in the bush, and I am sure a motor bicycle is just the thing. The roads on the coast are excellent, and it is down there that I shall use it most. The Government are busy making several good roads out of Kumasi. Of course, I shall not use it at midday, as the heat then is too great; the temperature in the sun is then often between 140° and 150°. I do not know of another motor cycle on the coast, so that it is purely an experiment. Petrol is unknown, so the carburetter will have to be adapted to use kerosene. I consider a machine built on the following lines would be just the thing: Engine, 3½ to 4 h.p. (single or twin), a.o.i.v., magneto, belt drive 4 to 1, 2 × 2¼ Clincher-Dreadnought tyres, height of saddle not to exceed 33in., and engine clearance not to be less than 4in. What a blessing there are no "police traps" here, and one knows when to expect rain. JNO. H. GREENUP.

The Scandal of Motor Cycle Tyres.

[3299.]—How is it that after nearly ten years' experimenting the ideal motor cycle tyre has not been evolved? Wherever motor cyclists meet one hears the same old complaints and grumbles, and few if any of the much vaunted tyre firms escape without severe criticism. It is safe to say that tyre troubles cause a far greater number of stoppages on the road than all other troubles put together. Belts that give reasonable service are on the market at reasonable prices, but for that essential, a reasonably perfect tyre one looks in vain. First one tyre is boomed and then another. Novices try them and are quickly disillusioned. Punctures and bad rubber make riding miserable.

The remedy is so simple and obvious that it is nothing more or less than a crime for the factories to continue turning out new rubbish at the present rate. It is quality and quantity of rubber that is required. Given that, a tyre can be produced that will give satisfaction and be practically undeflatable at a reasonable price. If tyre manufacturers will not give the public what is required they must be coerced by the cycle manufacturers, for it is safe to say that infinite harm is done to the trade by the abominable material that is to-day palmed off as motor tyres. A pure rubber well manufactured tyre is what is required, and for it high prices will be commanded. If any cyclist would care to try an experiment let him roast a piece of his cast off tyre and note the ash of lime, oxides, and sulphides that is left behind. Poor stuff for stopping horseshoe nails.

W. E. HOLMES.

[There are tyres and tyres. We shall always be pleased to advise as to best size of tyres and a reliable make if reader will send total weight of machine and rider.—ED.]

MOTOR BICYCLES FOR SALE.

HUMBER Motor Cycle, good order; £10. —H. Morris, 2, Tower Road, Dartford.

£6.—Clement-Garrard, Longuemare, 2 h.p.—2, Verona, Landsend, Chippenham.

ANGLIAN Motor Cycles, with simplest and most practical two-speed gear. —Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

SIDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London agents, H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W.

F.N., 2¾ h.p., light machine; take £14. —P., 12, Robert Street, Hampstead Road.

BRADBURY, 2¾ h.p., never been ridden; take £27 10s.— [illegible], 74, High Street, Deptford.

PHELON and Moore, [illegible] h.p., magneto, two speeds; £20.—[illegible], Vant Road, Tooting.

KERRY, 3 h.p., new last August; must sell; want cash, £15.—50, New Kent Road, S.E.

2 h.p. Motor Bike, wants overhauling; any offer accepted.—34, Leigh Road, East Ham.

ARIEL, No. 1, 2¾ h.p., very reliable; 15 guineas.—F., 16, Basuto Road, Parson's Green.

h.p. Triumph, magneto, perfect running; £25; no offers.—18, Marriott Road, Barnet.

2¼-2¾ h.p. De Dion, fast, low, reliable; good bargain; £10 10s.—13, Dermody Road, Lewisham.

3½ h.p. Triumph, 1907, magneto, perfect condition.—8, Barrett Street, Manchester Square, W.

£8 10s.—Light, low, in sound condition, 2½ h.p.; bargain.—Stored at 253, Bath Road, Hounslow.

ARIEL Quad, Dion engine, water-cooled head, spray carburetter; £10, or offer.—Kirstein, Moffat.

3½ h.p. Magneto Roc, in good order; clutch, Dunlops, etc.; £15. — 47, Station Road, Redhill.

F.N., four-cylinder, Palmer cord, 4½ h.p., little used; £35.—H., 60, Osborn Road, Palmer's Green.

WERNER Twin, 4 h.p., splendid order; £22 10s. — G., 3, Almorah Road, Halliford Street North.

F.N., four-cylinder, Bosch magneto, splendid condition; £20 cash. — Moore, Goodwood, Sidcup.

3½ h.p. Minerva, Ariel sidecar attached, both in splendid condition; £20 cash.—Buckett, Twyford, Berks.

1907 Triumph for sale, 3½ h.p., no worse than new, in splendid order; £33.—G. Teasdale, Chilton, Ferryhill.

REX de Luxe, twin tyre, magneto, Roc clutch, not ridden ten miles; £38.—G., 7, Gayton Road, Hampstead.

N.S.U., two ignitions, two speeds, 5 h.p., fine touring machine; £35.—N., 84, Drewstead Road, Streatham Hill.

SPECIAL Excelsior, 3.6 b.h.p., long, low, spring forks. — Particulars, Major Hart, Handsworth, Staffordshire.

5½ h.p. Twin Rex, good condition, spares, fast, take any hill; £20, or near offer.—Sawyer, Lyme Regis.

UNREDEEMED Pledge.—3½ h.p., splendid condition, complete; £13.—518, Kingston Road, Raynes Park, S.W.

QUADRANT, 3 h.p., 1905, excellent order, surface, Clinchers, new 1907; £16.—Foll, surveyor, Woburn Sands, Beds.

6 h.p. Twin Jap, Bat, spring frame, forks, studded back, sidecar, and spares, complete; £33, or exchange Triumph.—235, Kensington, Liverpool.

4 h.p. M.M.C. Pattern Motor, a good, sound roadster, low frame, spring forks; £12 10s., lowest.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

BOOTH'S MOTOR EXCHANGE

FOR FAIR DEALINGS.

£6 and a 3½ h.p. Rex or decent machine of other make secures a splendid 6 h.p. Twin Rex, low built.

£5 and your high built machine secures a low built 3½ h.p. Rex.

We specialise in Rexes. Tempting terms for cash or exchange. Fully guaranteed.

CASH, CREDIT, OR EXCHANGE.

6 h.p.	TWIN REX, fitted with new 8 guinea Millford sidecar	£25 10
5½ h.p.	REX DE LUXE, Roc clutch, magneto, twin tyres	27 10
5½ h.p.	TWIN REX, black finish	22 10
3½ h.p.	REX, magneto, speed pulley	18 18
5½ h.p.	TWIN REX, magneto, spring seat	23 10
3½ h.p.	REX, spring forks, low built	15 15
3½ h.p.	REX, 50 guinea model	10 10
4 h.p.	ROC, 1907, magneto, clutch	30 0
4 h.p.	ANTOINE, M.O.V., low built	14 14
	Four-cylinder F.N., magneto	23 10
3 h.p.	BEESTON HUMBER, 26" wheels	12 12
2¼ h.p.	ARIEL Lightweight, 26" wheels	12 12
3½ h.p.	EXCELSIOR, 26" wheels	11 11
3½ h.p.	TRIUMPH, 1907	35 0
6 h.p.	TWIN ANTOINE, like new	22 10
6 h.p.	TWIN ANTOINE sets, new	19 19
5 h.p.	TWIN KERRY, smart machine	22 10
5 h.p.	TWIN G.B., magneto, spring forks	25 10
	TWIN CLEMENT-GARRARD, spring forks, two speeds, 2¼" Palmers	18 18
4 h.p.	STEVENS, torpedo tank	13 16
3½ h.p.	N.S.U., magneto, 2¼" tyres	22 10
3½ h.p.	MINERVA (1907), shop-soiled spring forks, 2¼" tyres, stand	25 10
3½ h.p.	MINERVA, very smart	16 16
3½ h.p.	CHATER-LEA, vertical engine	13 13
3½ h.p.	QUADRANT, brand new (1908),	42 0
2¾ h.p.	KERRY, tyres like new	11 10
2¼ h.p.	KERRY, low and smart	10 10
3 h.p.	HUMBER, free engine	11 10
3 h.p.	ARIEL, 26" wheels, M.O.V.	11 10
2¾ h.p.	ARIEL-MINERVA, low	11 10
3 h.p.	WERNER, fitted Shaw engine	12 12
3½ h.p.	WHITELEY, spray, good tyres	8 15
3 h.p.	CLYDE, M.O.V., magneto	11 10

LIGHTWEIGHTS. SPECIAL OFFERS.

3 h.p.	BRADBURY, vertical engine	£10 10
3 h.p.	PEBOK, vertical engine, low	10 10
2 h.p.	MINERVA, M.O.V., 26in. wheels	8 10
2½ h.p.	SPARK, vertical engine, magneto	10 10
2½ h.p.	JAP, good tyres, reliable	8 15
3 h.p.	CALVERT, vertical engine, low	8 15
2½ h.p.	DE DION, vertical engine	8 15
2¾ h.p.	SAROLEA, vertical, spring forks	9 15
2½ h.p.	DE DION, vertical, less tank	6 15
2½ h.p.	CENTAUR, enamel like new	8 15
2½ h.p.	MINERVA, vertical, low	9 10
2½ h.p.	MINERVA, grand condition	8 15
2½ h.p.	REX, vertical, spray	8 15
1¾ h.p.	MINERVA, good condition	6 15
1¾ h.p.	QUADRANT, very reliable	6 15
1¾ h.p.	MINERVA, very fast	5 15

Push cycles part payment.

TRICARS.

10 h.p.	TWIN REXETTE, open frame, sprung, two speeds, special finish	£45 10
5 h.p.	HUMBER, W.C., open frame, wheel steering, two speeds	35 0
4 h.p.	HUMBER, W.C., Phelon & Moore two-speed gear, coach built	18 10
4 h.p.	TRENT, W.C., open frame, two speeds, wheel steering	18 10
4 h.p.	DERRICK, coach built, free engine	16 16
4 h.p.	REX, free engine, special engine	17 17
3½ h.p.	ROYAL SOVEREIGN, light	11 11
6 h.p.	TWIN REX, forecarriage fitted, magneto, spring seat	27 10
3½ h.p.	WHITE & POPPE, M.O.V., Kent three-speed gear	16 16

MOTOR TRICYCLES.

2¾ h.p.	BEESTON HUMBER, good tyres	£6 10
3½ h.p.	AUTO MOTO, good order	6 10
	Tricycle, less engine, two speeds, tyres	3 0

SIDECARS.

	MILLS-FULFORD, rigid, like new	£6 10
	MILLS-FULFORD, castor wheel	8 10

ENGINES.

	New 6 h.p. TWIN ANTOINE, complete	£8 5
	Ditto, nearly new	7 10
6 h.p.	AVON, W.C., up-to-date, M.O.V.	8 5
5 h.p.	ANTOINE, M.O.V., nearly new, W.C.	8 5
2¾ h.p.	NOBLE, M.O.V., vertical	3 5
2 h.p.	MADISON, good order	1 15
1¾ h.p.	MINERVA, inclined	1 10

Small engines taken in exchange.
High-class motor cycles wanted for cash.

H. BOOTH,
CORONET WORKS, WADE STREET,
HALIFAX.
Telephone 198Y.

MOTOR BICYCLES FOR SALE.

4½ h.p. Twin Minerva, 1907, splendid mount, Palmer cord back; going cheap.—Varcoe, St. Austell, Cornwall.

2¾ h.p. Kerry, scarcely used, fast, powerful; what offers?—Varcoe, St. Austell, Cornwall.

3 h.p. Quadrant, surface carburetter, good condition; a bargain, 9 guineas.—Varcoe, St. Austell, Cornwall.

5 h.p. Twin Peugeot, been 1,000 miles; £28; trial with pleasure. — 65a, Rosendale Road, West Dulwich.

1907 3½ h.p. Minerva, spring front forks, equal to new; £21.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5 h.p. 1907 Twin Rex, nearly new, £22; Montgomery sidecar, £5 5s. — O. Howden, Adwick-le-Street, Doncaster.

3½ h.p. Magneto Triumph, with spares, tyres, nearly new; £32 cash. — C. W. Blythe, Market Street, Coventry.

3 h.p. Triumph, perfect order and condition; £19, absolute bargain. — Carlton, Warwick Road, Snaresbrook.

5 h.p. Peugeot, Chater-Lea No. 6 frame, tyres like new, low position; £25.—Bernstein, 103, Charing Cross Road, W.

BARGAIN.—1¾ h.p. De Dion motor cycle, in good condition, right for road; quick sale £6 15s.—Element, Eardisley.

SPLENDID 3 h.p. Motor Cycle, perfect, £15; take push cycle and cash.—Particulars, 6, Lady Lane, Chelmsford.

GIVEN Away.—4 h.p. M.M.C., splendid condition, very powerful, fast, silent, absolutely reliable; going at £14.

2½ h.p. F.N., also good condition, with good trailer; £10 cash, dirt cheap; wire money and secure bargains. — 42, Blenheim Crescent, South Croydon, opposite Purley Oaks Station.

3 h.p. Whitley, Chater-Lea frame, 20in., Palmers; £9 10s.; approval.—Smith, Laburnum Villa, Coalway, Coleford, Glos.

BROWN, 2¾ h.p., Longuemare, Dunlop, long bars, good condition; any trial; £12.—6, Islip Street, Kentish Town, N.W.

3½ h.p. Bat, rigid frame, very fast; £15; in sound order throughout.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Minerva, surface carburetter, new tyres, new engine, good order, all accessories; £11.—37, Halidon Street, Clapton.

1¼ h.p. Lightweight N.S.U., 1907 model; £17 10s., immediate cash.—On sale at Wauchope's, 9, Shoe Lane, Fleet Street, London.

TWIN Rex, new February, with or without cane seated trailer; £25, or offers.—Matthewman, Westhouse, Kirkby Lonsdale.

2¾ h.p. Phœnix, two-speed gear, very excellent machine; £17 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

4½ h.p. Motor Cycle, Longuemare carburetter, long wheelbase; must sell; £12.—82, Queen's Road, Peckham, London.

SOMERSET.—3½ h.p. Centaur, very little used, fully equipped for road; only £18. — Particulars, Cross, Bullen Court, Ilminster.

TRIUMPH, 1907, 3½ h.p., magneto, self-sealers, practically new, accessories; lowest £32 10s.—Julyan, Narrow Street, Peterborough.

3½ h.p. N.S.U., magneto, 24in. wheels, in very excellent order; £17.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5½ h.p. Rex, splendid condition, adjustable pulley; £20, or exchange lower power and cash.—32, Endwell Road, Brockley, S.E.

NOW or Never?—45s. deposit and six monthly payments of 29s. secures either 3 h.p. Humber, 3 h.p. Noble, 3 h.p. Rex, 3 h.p. Clarendon, 3 h.p. Excelsior, 3 h.p. Automotor, 2¾ h.p. R. and P.; delivery on first payment.—Farrar, Square Road, Halifax.

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

STOCKPORT.—5 h.p. 1907 Vindec, magneto, Kempshall 2½ non-skid tyres, Truffault forks, just been thoroughly tested; 33 guineas.

STOCKPORT.—If you covet a medal in the end-to-end run, ride a Midget Bicar.

STOCKPORT.—4 h.p. twin N.S.U., magneto, two-speed gear, free engine; cost £55 15s. last year; 29 guineas.

STOCKPORT.—4½ h.p. 1907 Roc, magneto, 2½ tyres, unscratched, only run 500 miles; 28 guineas.

STOCKPORT.—See illustration and description of Midget Bicars, page 5 (advertisements), April 1st.

STOCKPORT.—Easy payments and exchanges arranged on any make of machine, new or second-hand Midget Bicars included.—Lund and Davies, Heaton Lane, Stockport.

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London.

ALMOST New 7 h.p. Peugeot, twin, Chater-Lea, hill leveller, grand condition; forced sale; £27, offers.—McDonald, Leven, Fife.

4 h.p. Kelecom-Antoine Motor Bicycle, brand new; a very great bargain, £21 10s.—Crypto Car Co., 14, Mortimer Street, London.

1¼ h.p. N.S.U., lightweight, 1907 model, very smart, and a good goer; £17 10s.—At Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. Triumph, 1907, magneto, ridden 300 miles, scarcely soiled; £36.—Moore, engineer, Egginton Hall, Egginton, Derbyshire.

2¾ h.p. Beeston Humber, free engine, splendid condition, take two anywhere; bargain, £16 16s.—12, Claremont Hill, Shrewsbury.

PHŒNIX Cob, 4½ h.p., magneto, two speeds, in new condition; also forecarriage attachment. — Z., 6, Central Meat Markets, E.C.

2½ h.p. Kerry, nearly new, having only run about 100 miles, in going order; £15.—Apply, C.W., 28, Upper Clapton Road, London, N.E.

ROC, 4-5 h.p., free engine, foot clutch, foot brake, Palmer cord tyres, magneto; bargain, £19 10s.—W. Hearne, Marlborough Road, Woking.

2 h.p. Buchet Racer, vertical engine, top tappets, short wheelbase, spring forks; £13 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

SPLENDID 2¾ h.p. Werner, recently overhauled, re-nickelled and re-enamelled, very fast; £12. — Price, 1, Clifton Road, Luton.

3 h.p. Quadrant, equal to new, every part, including tyres, in splendid order; a real bargain.—Dibben and Sons, Motor Garage, Wimborne.

2¾ h.p. Chase, Zedel engine, Chater-Lea frame, in good, sound running order; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3⅛ h.p. Clarendon, spray, trembler, 28in. wheels, guaranteed first-class running order; £12.—Engineer, Electricity Works, Consett, Durham.

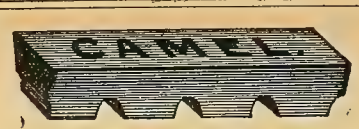
3 h.p. Chase, Decart engine, Chater-Lea frame, very powerful, a good, sound roadster; £16 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

F.N., 1¾ h.p., lightweight, latest pattern, Simms-Bosch magneto, little used, perfect condition; £24.—Coombes, 737, High Road, Tottenham.

3½ h.p. 1907 Magneto Triumph, in perfect condition and running order; £34 10s.—At Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. Fafnir, in Chater-Lea frame, non-skid back wheel, M.O.V., in new condition; £19 19s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

WAUCHOPE'S have some good bargains in second-hand motor cycles from £6 10s.; send for list.—Wauchope's, 9, Shoe Lane, Fleet Street, London.



Rubber and Canvas V Belting. Embodies all good points of other rubber belts without their drawbacks. "A distinct improvement."

NOTE.—The prices are between 33% and 50% less than other makes. Good rubber belts need not be dear. Send cash for sample length on approval. ⅝" 9d., ¾" 1/-, ⅞" 1/4, 1" 1/8 per foot. Any length cut. Fasteners 6d. each.

CASH, CREDIT, or EXCHANGE.

3½ h.p. PEUGOT, magneto	£22	0
5½ h.p. N.S.U., magneto, two speeds	36	0
5½ h.p. REX DE LUXE, twin tyres, clutch	26	0
3½ h.p. 1907 REX, 26 x 2½ tyres	18	0
4-cylinder F.N., fine machine	26	0
4½ h.p. G.B., magneto, Nala two speeds	37	0
3½ h.p. REX, 22" frame	11	0
5 h.p. Twin KERRY, very low	22	0
5½ h.p. Twin REX, lovely goer	20	0
4 h.p. ANTOINE, magneto, 1907	22	0
3½ h.p. 1906 REX, spring forks, etc.	15	0
3½ h.p. 1905 REX, spring forks, 26" wheels	13	0
3 h.p. TRIUMPH, lovely goer	25	0
3 h.p. MINERVA, vertical, M.O.V.	12	0
3 h.p. N.S.U., fine goer	16	0
3½ h.p. EXCELSIOR, smart	10	0
2¾ h.p. R & P., 26" wheels, vertical	10	0
3 h.p. CLARENDON, good, vertical	10	0
3½ h.p. AUTO-MOTOR, spray, vertical	10	0
2¾ h.p. GRIFFON, spray, vertical	10	0
3 h.p. NOBLE, spray, vertical	10	0
3 h.p. REX, vertical	10	0
2¾ h.p. HUMBER, spray, trembler	10	0
1¾ h.p. MINERVA, spray, 26" wheels	6	10
2 h.p. QUADRANT, spray, smart	7	10
2½ h.p. HUMBER, spray	9	0
2½ h.p. REGAL, vertical, spray, 26" wheels	9	0
2½ h.p. CYCLONE, spray, vertical	7	0
2 h.p. MINERVA, M.O.V., 26" wheels	9	9

ALBION V BELTING.

New principle longest life.
¼" 7d., ⅜" 8d., ½" 9d., 1" 10d. per foot.

TRICARS.

5½ h.p. REXETTE, spring frame	£35	0
5 h.p. REXETTE, two speeds	29	0
4½ h.p. REXETTE, water cooled	25	0
4½ h.p. Water-cooled Quad, two speeds	16	0

ENGINES.

2 h.p. Minerva	£2 10	3 h.p. King	£2 19
3½ h.p. Quadrant	4 10	3 h.p. De Dion	4 0
3½ h.p. Standard	3 3	3½ h.p. Lucas	2 19
3 h.p. X.L.	2 19	4½ h.p. Aster	5 10
1¾ h.p. Minerva and frame			2 5
2 h.p. Simms, fitted with magneto			3 0

SIDECARS.

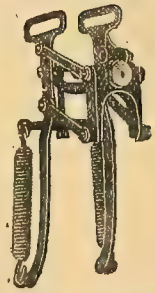
Rigid	£3 10	Ariel, rigid	£3 10
Montgomery	4 10	British Standard	5 0

NEW TYRES FOR OLD.

Genuine Continentals.	Cover.	Tube.	Genuine Continentals.	Cover.	Tube.
26 × 2	24/-	9/6	28 × 2	25/-	10/-
26 × 2¼	25/6	10/-	28 × 2¼	27/3	10/6
26 × 2½	29/6	11/-	28 × 2½	29/9	11/3

3/- allowed for old covers, 2/- for old tubes.
Traders and Agents send for discounts.

CANTILEVER SPRING SEATS.



Luxurious and strong. Fit any machine. 10/- each.

LYCETT'S "LIGHTNING" STANDS.

FIRM. RIGID. STRONG.
For 24in., 26in., or 28in. wheels.
4/9 per pair. Worth three times the money.

Send for Price List of Accessories. Pounds saved

HIGH-CLASS MOTOR CYCLES WANTED.

E. FARRAR,
Albion Works, Square Road, HALIFAX.
Next door to Square Church.

MOTOR BICYCLES FOR SALE.

ROC, 4 h.p., Military Model, Roc clutch, magneto, Watawata, long, low, perfect condition; £25, or near offer.—Chamberlain, Bulwell, Nottingham.

LADY'S Motor Bicycle, Singer, 2½ h.p., spring pillar seat, splendid condition; £15, inclusive speedometer.—S., 21, Duke's Avenue, Muswell Hill.

WHITE and Poppe 3½ h.p. motor cycle, pedalless, new tyres and cylinder, perfect order; Reflex camera part exchange.—Barrett, Ripley, Surrey.

TRIUMPH, 3½ h.p., 1908, quite new, just delivered from works, complete with all accessories, lamp, horn, etc.; price £48.—Wrench's Garage, Banbury.

FOR Sale, cheap, three motor cycles, one tricar, or exchange push cycles or alternating charging plant and cash balance.—Dening, East Street, Taunton.

2½ h.p. Kerry, spring pillar, Perfecta lamp, spare pulley, etc., splendid running order; £8 10s. — 3, Broughton Road, London Road, Thornton Heath.

2¾ h.p. Minerva, engine just overhauled by makers, 26in. Palmer cords, everything in order; must sell; £13.—Thistlethwaite, Grassington, Yorks.

TWIN Rex, 5 h.p., magneto, Osborne free engine and four-speed pulley, only run 150 miles, perfect condition; £35, bargain.—Greenwood, Corby, Grantham.

3 h.p. Rex, good hill-climber, £12 10s.; also 1½ h.p. Minerva, good running order, aluminium finish, £8; both just overhauled; approval.—W., 17, Fairview Terrace, Salisbury.

3½ h.p. White and Poppe, Chater-Lea throughout, Palmer cords, everything complete, in perfect order; £25; worth seeing; write first. — Motor, 2, Spencer Park, S.W.

2 h.p. Light Fairy, chain and belt drive, in excellent condition, twin-cylinder horizontal engine; £15 15s. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

BARGAIN.—3½ h.p. Brown motor cycle, good condition; must sell; 10 guineas; can be seen by appointment.—Glover, 144, South Birkbeck Road, Leytonstone.

IMMEDIATE Sale.—4½ h.p. Centaur motor cycle, fast, in good repair, chain driven; £18; open to offer for immediate sale. — Swanston, Jesus College, Cambridge.

CHATER-LEA Lightweight, 2¾ h.p. Rover engine, No. 6 frame, brass tanks, accumulator, footboards, very low; £14.—Wyatt, 11, Neal Street, Long Acre, London, W.C.

MOTOSACOCHE, new condition, stand, pneumatic saddle, Lucas lamp, spares; £24, cost £32 cash; London.—Box L2,231, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

2½ h.p. Minerva, all accessories, ready for road; price £8; ridden to any address in London.—Letters only to G. Westlake, Engineer's Dept., Middlesex Hospital, W.

3½ h.p. New Triumph, magneto, unscratched, unpunctured; £32 10s., cash only; three new belts, valves, and plenty of spares.—A. Ellison, Knowsley House, Wigan.

3½ h.p. Spring Frame Bat, in very excellent condition, footboards, M.M.C. engine, De Dion carburetter; £17 10s. — Wauchope's, 9, Shoe Lane, Fleet Street, London.

QUADRANT, 3½ h.p., 1906-1907, not ridden above 500 miles, condition as new, together with about £5 accessories; price £27 10s.—Seen at Hunt's Stores, Newgate Street, London.

MINERVA, 2½ h.p., cheap for cash, Strata belt, Clincher tyres, spare petrol tank, excellent condition, fast and reliable; £12. — Chilworth, 82, Welldon Crescent, Harrow.

LIGHTWEIGHT 2½ h.p. Jap, B.S.A., F.N., new Dunlops, handle-bar control, accumulator and dry battery, stand, lamp, horn, numbers; 11 guineas.—339, Brixton Road, S.W.

MOTOR BICYCLES FOR SALE.

ACTON.—3½ h.p. N.S.U., magneto ignition, 24 by 2¼ Peter-Union tyres, low frame, two-speed gear, perfect condition; £26.

ACTON.—3½ h.p. Brown, 1907, low built, Palmer tyres, new condition; £21.

ACTON.—3½ h.p. N.S.U., 1907, accumulator ignition, 26 by 2¼ Peter-Union tyres, as new; £21.

ACTON.—2¾ h.p. Kerry, in splendid order; £12 10s.

ACTON.—3½ h.p. Automotor, low built, 26in. Clincher tyres; £9 10s.

ACTON.—Any of the above can be had on approval.

ACTON.—West London District Agency for the famous N.S.U., all models in stock, two-speed gears, spare parts; liberal allowance for machines in part payment. — Eagles and Co., 275, High Street, Acton. Telephone, 556, Chiswick.

HORNER'S Agency, Store Street.—All models Rex motors supplied on most advantageous exchange and gradual payments.

REX Lightweight, used for trial purposes only, absolutely new; special offer.—Horner's, Store Street.

HORNER'S Agency, Store Street.—Rex spares; expeditious repairs effected, any make machine.

FAIRY, 1907 model, light, handy; £12, lowest, great bargain. — Hodges, Ewell.

£15.—Smart Beeston Humber, 2¾ h.p.; cost £68; reliable.—Windross, Fosse Road, Leicester.

£10.—Motor bike, 2¾ h.p. Minerva, M.O.V., in splendid order. — Jones, ironmonger, Lichfield.

TRIUMPH, 1907, magneto cover, in nearly new condition; £32.—Parker, Melbourne, Derby.

TRIUMPH, 1907, 3½ h.p., magneto, nearly new condition; sacrifice £33.—45, Parade, Leamington.

3¼ h.p. Humber, belt drive, re-bushed, new back cover; £6.—103, Archel Road, W. Kensington.

h.p. Twin Rex, black finish, good order; quick sale £20.—Max Woods, Rock Villa, Latchford.

5-6 h.p. Twin Rex, spring forks, guaranteed; only £18 10s.—Garaged, Hardy's, Carlton Street, Halifax.

JAP, 6 h.p., splendid condition, powerful, fast; offers wanted.—337, West Green Road, Tottenham.

£9 15s.—Peugeot, 2½ h.p., vertical engine, spray, fast and reliable.—26, Offerton Lane, Stockport.

3½ h.p. Phelon-Moore Two-speed Humber, Liberty sidecar, new 2¼ Palmers; any trial; perfect; first £20. — Morris, Peter's Street, Derby.

3½ h.p. Motor Cycle, in excellent running order; any trial; £10. — 67, Wellington Street, Woolwich.

FAFNIR, 3 h.p., mechanical valves, in splendid condition; £14.—Motor, 64, Darlington Street, Wolverhampton.

MINERVA, 3½ h.p., with Fit-all two-speed gear, splendid order; £18, or exchange.—Parker, Melbourne, Derby.

2¾ h.p. F.N., in perfect order, low and light, new accumulator and belt; £7 10s., cheap.—Workman, Knole, Sevenoaks.

h.p. Humber Cycle and 4 h.p. Chase tricar and cash for 6 h.p. De Dion, or sell £11, £16.—Richdale, tobacconist, Pendleton.

F.N. Lightweight, 1908 model, magneto, spring forks, absolutely perfect condition; accept £20.—358, Stratford Road, Birmingham.

2¾ h.p. De Dion, Chater-Lea, 2in. Palmers, enamelled grey, thorough condition; £12. — C. Tucker, 58, Myrtle Road, Acton, W.

£18. — Twin-cylinder Werner, 4 h.p., equal new, new tyres, 26in. wheels, spring forks; a sacrifice.—Price, jeweller, Penmaenmawr.

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New pair of Motor Cycle Wheels, 26in., belt rim, and two cable brakes fitted	£2 0
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New Price's Stands for 26in. wheels	5/11
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Fifty pairs Xl'all Spring Forks (1908).	
Massive Horns, deep tone	3/9
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Long Handle-bars, well plated .... 4/9 and	5/6
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Patterns for 4 h.p. Cylinder M.O.V.	40/0
Three Second-hand Plain Coils	8/-
Twin Invicta Trembler Coil	12/6

Send for Accessory List.

WE ARE WANTING

Rex de Luxe, 3½ h.p. Magneto Rex, four-cylinder F.N., 4 h.p. Roc, 1907 Triumph, Lightweight F.N., Jap, 3½ h.p. Bat, Barlock Typewriter, Gramaphone, Sidecars.

CASH AND CLIENTS WAITING.

BOOTH'S MOTOR EXCHANGE,
Coronet Works, Wade Street,
HALIFAX.
Telephone 198Y.

MOTOR BICYCLES FOR SALE.

BARGAIN.—3½ h.p. F.N., four-cylinder, 200 miles, perfect enamelling, plating. — Watson, 51, Windmill Road, Luton. £18, offers.

3½ h.p. 1907 Triumph, expanding pulley, equal to new; £32, or with castor wheel sidecar, £37.—Scrase, 234, Battersea Park Road, S.W.

1¾ h.p. Werner, good running order, new back tyre, spring fork attachment; must sell this week; £4. — W. Fisher, Arrow, Alcester.

2¾ h.p. Phœnix Minerva, good running order; owner gone abroad; seen at any time; best offer accepted. — 9, South Street, Isleworth.

2¾ h.p. Zedel, new Dunlops, Watawata belt, complete set of spares, splendid running order; £14 10s.—Rotom, 9, Cannon Place, Hampstead.

2⅜ h.p. Rex, good going order, low frame, spring forks, new back tyre, Longuemare, trembler; £14, or offer.—234, Belsize Road, Kilburn, N.W.

2¾ h.p. Minerva, good hill-climber, excellent condition, spare belt, accessories, spares; £15.—R. Carlisle, Old Cleeve, Washford, Somerset.

2 h.p. Werner, vertical, Advance adjustable, Palmers, Main-Hilton, less coil, otherwise running order; £6.—Lea, Gresford, Sumner Road, Harrow.

4 h.p. Roc, 1908 model, Truffault spring forks, free engine and two-speed gear, magneto, absolutely new; £45.—Walker, The Homend, Ledbury.

REAL Bargain.—3½ h.p. Humber motor cycle; £12; perfect condition, Palmer tyres, spray, trembler.—Winstanley, 84, Denton's Green, St. Helen's.

3 h.p. N.S.U., 1906, magneto, perfect condition, new Continentals and inner tubes; sacrifice £18. — Post Office, Strand-on-Green, Chiswick, W.

1907 Triumph, 3½ h.p., spring forks, lamp, horn, spares, etc., not ridden 200 miles, absolutely as new; £34. —173, Uxbridge Road, West Ealing.

h.p. De Dion Motor Cycle, long bars, spring forks, lamp, horn, stand, and carrier; trial; £14, or near offer.—Griffiths, 212, Deane Road, Bolton.

3½ h.p. Jap, low, spring frame, perfect condition, practically new; £18; will ride to intended purchaser.—Motorist, 144, Tottenham Road, Kingsland.

1907 3½ h.p. Magneto Triumph, N.A.B. spring seat-pillar, Lucas lamp, large horn, excellent condition; £28 cash, no offers.—24, St. Malo Road, Wigan.

1906 3⅜ h.p. Rex, spring forks, excellent condition, thoroughly reliable, powerful; £15 for quick sale.—A.T.S., 86, Colvestone Crescent, Dalston, London.

3½ h.p. Durkopp, 2½ tyres, ball bearing engine, trembler, spring forks, spray; £16, or best offer; splendid condition.—11, Avenue Road, Goldhawk Road.

1907 Triumph, 3½ h.p., magneto, new last August, Goodrich studded cover on back, several 1908 improvements; £32.—5, Grove Villas, Wanstead, E.

3½ h.p. Minerva, lamp, horn, stand, just as received from makers; about £27; forbidden to ride. — Greenhalgh, joiner, Gooden Street, Heywood, Lancashire.

SINGER Motor Bicycle, engine in back wheel, in good running order, £6; also Kerry, 2¾ h.p., first-class condition, tyres almost new, £13.—White, Sawbridgeworth.

3½ h.p. Minerva, low, Clinchers, 26 wheels, fine condition; £17, or entertain exchange for good push bike and cash.—9,817, *The Motor Cycle* Offices, Coventry.

£28.—5½ h.p. G.B. Motor Cycle and Sidecar, excellent condition, winner of gold medal and certificate in London to Edinburgh run.—West Kent Garage, Sydenham.

3½ h.p. Excelsior, very fast, reliable machine, good order, £12; also broad Warrior trailer, perfect condition, £3, or offers.—Postern, Sandford Road, Bromley, Kent.

MOTOR BICYCLES FOR SALE.

2¼ h.p. Motor Bicycle; £5, offers.—St. Bertha, Talbot Road, Wembley.

ROC, 3½ h.p., magneto, free engine clutch, as new, unscratched; cheap, £21.—Below.

ZEDEL, 2¾ h.p., vertical, light, low; cheap, £11 11s.—Whittle, 41, Skelbrook Street, Earlsfield.

4 h.p. M.M.C., practically equal to new; cost £57 10s.—123, Graham Road, Hackney.

1907 2-3 h.p. Minerva, spring forks, guaranteed running order; £16.—Spear, Fittleworth, Sussex.

3½ h.p. Quadrant, genuine 1906 pattern; £17.—Jakeman, 75, Hawthorne Street, Totterdown, Bristol.

4½ h.p. Four-cylinder F.N., latest, practically new; £30, lowest.—No. 9,815, *The Motor Cycle* Offices, Coventry.

2 h.p. Minerva, spray, girder forks, perfect running order; £6, or nearest offer.—34, Arthur Street, Gravesend.

BARGAIN.—2¾ h.p. Hobart, low seat, long, spray, good order, £9; good trailer, 30s.—Ewart, Draper, Maryport.

TRIUMPH Motor Cycles. — Agents, Bright and Hayles, "Camber" Motor Works, Church Street, Camberwell.

TRIUMPH, 1908, magneto, new in February, and quite perfect; £43. — 1, Grosvenor Place, Birkdale, Lancashire.

HERDTLE Brunneau Lightweight, V belt; cost 30 guineas, nearly new, £18, offers.—44, Horace Road, Forest Gate.

TRIUMPH, 1907, 3½ h.p., horn, Pulco gas lamp, not used; accept £33.—Lewington, 1, Grove Parade, Enfield Wash, N.

3½ h.p. 1907 Rex, new, never used, unsoiled, 25-guinea model; best cash offer.—1, Bank Terrace, Whitworth, Rochdale.

2 h.p. Minerva Engined Lightweight, not ridden 300 miles, good condition; best offer has it.—1, Bank Terrace, Whitworth, Rochdale.

2¾ h.p. Rothwell-Minerva, Longuemare, Clinchers, very good condition; £10.—1, Bank Terrace, Whitworth, Rochdale.

EXCELSIOR, 3½ h.p., new Palmers, long handles, low seat, handle-bar control, perfect; £12.—34, Evering Road, Stoke Newington.

12-16 h.p. Racer, grand touring machine, new; £35, cost £70; appointment.—R. Hutchison, Apsley Villa, Clapham Road, S.W.

£17.—4 h.p. Antoine, fine condition, P.U. tyres (uncut), accumulator, footboards, low, Stanley belt.—25, Morven Grove, Southport.

3 h.p. Triumph, accumulator, Fafnir, splendid condition; trial; £16 15s.—18, Ferncliff Road, Sandringham Road, Dalston, London.

2¼ h.p. M.M.C., Longuemare, foot brake, etc., beautiful condition, and reliable machine; £9.—13, Stanley Road, Earlsdon, Coventry.

3½ h.p. Rex, 1907, long bars, footboards, many spares, fast, and good hill-climber; £16. — Bond, 37, Whitehorse Road, West Croydon.

ROC, 1908, two-speed gear, magneto, H.B. control, new tyres and all accessories; £28; approval.—Tandy, Wellington Square, Crewe.

BROWN, 3½ h.p., in new condition, tyres and belt new, good reliable machine; £15.—Perry Brown, Little Hallingbury Hall, Bishop's Stortford.

3½ h.p. Minerva 1907, as good as new, not been 80 miles; £20, including spares, footrests, lamp, and tools.—Scott, 19, Clarges Street, London.

3½ h.p. Kelecom, 26in. wheels, Clincher tyres, handle-bar control, splendid order; £12 10s.—H. Hill, 70, Loughborough Road, Nottingham.

REX de Luxe Twin, black and gold, magneto, twin tyres, clutch, new January, Millford rigid sidecar; £34 10s., or separate.—56, Riverview Grove, Chiswick.

THE ONLY GEAR - - -

that has 5 years of experience behind it is

THE PHŒNIX Two-speed Gear.

£7 10s. to £8 15s.

Up to 5 h.p. Belt or Chain

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Y.M.C.A.

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5-6 REXETTE, good order .. £35
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3½ N.S.U., magneto, nearly new £30
3¾ N.S.U., magneto, shop-soiled £38
3 N.S.U., magneto, Prize Winner, £27
3½ CENTAUR, with sidecar .. £25
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YORKSHIRE MOTOR CYCLE AGENCY

169, Briggate, LEEDS.

The "MABON" FREE ENGINE PULLEY AND CLUTCH.

No alterations required to fit. Operated from handle-bar.

PRICE FROM 55/-.

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At extraordinary prices. Genuine Calmon, with non-slipping tread, extra heavy, beaded, 26×2, 14/3; 26×2¼, 16/3; 26×2½, 17/3; 28×2, 17/11; 28×2¼, 21/-; 28×2½, 23/6.

BELTING, Grappler, best rubber grooved, ¼in., 9d.; ⅜in., 1/-; ½in., 1/3; 1in., 1/6. Samples free.

BANCROFTIAN CO., 49, Bishopsgate Street Within, E.C., and Walthamstow.

MOTOR BICYCLES FOR SALE.

£10.—Singer, 2 h.p., chain drive, magneto, new rings, etc., just overhauled by makers; enquiries invited.—Wray, Postmaster, Catterick.

2¾ h.p. Lightweight Motor Cycle, Wearwell engine, complete, nice running order; bargain, £5 10s.—Seen, 10, Eliphant Road, London, S.E.

2¾ h.p. Genuine De Dion Bouton, Longuemare, copper tank, in splendid condition and running order; £11.—M., 39, Southcroft Road, Tooting

2½ h.p. Demos, low, long handle-bars, perfect condition; 10 guineas cash, no offers; trial.—Write, 17, Elmsmere Road, Didsbury, Manchester.

3 h.p. Fafnir, spring forks, splendid going order; trial; must sell before May 14th; £12 10s., or near offer.—"Momaire," New Road, High Barnet.

HUDDERSFIELD Agents for Triumph, N.S.U., Brown, Roc, Phelon-Moore, Minerva, and Vindec; machines in stock. —Moldgreen Engineering Works.

THOSE in Want of a thorough Reliable Machine come and see my 3½ h.p. Ariel, practically new and guaranteed; £16.—104, Hampstead Road, N.W.

1908 Triumph, new, just delivered, unridden, with accessories, exactly as delivered; satisfactory reason for selling; £45.—186, South Lambeth Road, S.W.

1906 4 h.p. Twin Werner, spring forks, powerful, fast, splendid machine; £20, or single-cylinder and cash.—S., 86, Colvestone Crescent, Dalston, London.

3½ h.p. White and Poppe, Chater-Lea frame, 2½ tyres, in perfect condition, £17 10s.; 2¾ h.p. Clarendon, bargain, £7 10s.—Castell, 164, Malden Road, N.W.

£9.—Kerry, 2¼ h.p., light and low, new cylinder, engine completely overhauled, good climber, Palmers; seen any time; photo.—45, Upper Park Road, New Southgate.

2 h.p. Quadrant, new tyres, spring forks and seat-pillar, powerful, perfect running order; nearest offer to £8; owner invalided.—189, Bowes Road, New Southgate.

MOTOR Cycle, 2¾ h.p. Stevens engine, 26in. wheels, Clinchers, as new, new belt, two accumulators, acetylene headlight; £14.—Parnell, 20, Drummon Street, Wolverhampton.

SACRIFICE £15 15s.—6 h.p. Twin Antoine, magneto, Roc free clutch, 2½in. tyres; no approval; come and see it. — Confectioner, 12, Kew Bridge Road, Kew Bridge, Brentford.

2¾ h.p. Humber, capital running order, new tyres, new chains, new accumulator, many spares; expert examination invited; 10 guineas.—Young, Churchill, Kidderminster.

MOTOR Cycle, 3½ h.p. M.M.C., trembler coil, two accumulators, lamp, horn, tools, spares, etc., engine, tyres, belt, etc., all excellent condition; £15.—Plant, 11, St. Mary's, Bedford.

1¾ h.p. Quadrant-Minerva, surface carburetter, good tyres and condition, does not want any money spending on it; £6 10s.; approval.—Cooler, High Road, Ponder's End.

APPROVAL.—5 h.p. twin Alcyon, £19 10s.; 3½ h.p. C.C.R. Peugeot, as new, £25; 2¾ h.p. F.N., low frame, £12 10s; exchange entertained.—Smith, Ford Street St. Mary, Nottingham.

3½ h.p. Humber, very little used, quite equal to new, chain drive, new Dunlops, all accessories; guaranteed; £13; trial with pleasure.—Hallam, Baths, George Street, Buxton.

ROC, 4 h.p., Military Model, magneto, Hermetic non-skids, Watawata, horn, lamp, numbers, etc., excellent throughout, not run 1,000 miles; £25, or near.—Phipps, builder, Selsey.

FOUR-CYLINDER F.N. Motor Cycle, magneto ignition, spring forks, not ridden 600 miles, absolutely perfect; cost £50, sell great bargain, 19 guineas.—P. Riddelsdell, Boxford, Suffolk.

£5 10s. — Triumph-Hercules, Bassee-Michel coil, Cremorne carburetter, tyres and engine in perfect condition; first cheque secures bargain.—Address, T., c/o P. D. Bourke and Co., Limerick.

THE MOTOR CYCLE

Vol. 6. No. 268. May 13, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

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Unattached Riders. An Associates' Scheme.

WE are pleased to hear that the Auto Cycle Union has decided to organise a scheme of association for unattached riders at 5s. per head. We have constantly advocated a scheme on these lines, knowing perfectly well that if the A.C.U. did not handle the matter on behalf of motor cyclists other associations would do so, as correspondence in our pages last week and this week will show. At a recent committee meeting of the A.C.U. it was decided to hand this business over to the Relations Committee, so that full details of the scheme will very shortly be made public. The Auto Cycle Union is, of course, the motor cyclists' body *par excellence*, and we strongly recommend all riders who contemplate joining an association either for touring or other benefits to withhold their hand until the details of the scheme now preparing are made public. Whatever benefits may be derived from any other association, motor cyclists should support the Auto Cycle Union when the subscription is brought within their reach. Riders resident in London and district are strongly recommended to join the A.C.U. as full members, because, living in London, they derive many advantages from the union which are not so easily obtainable when resident in the provinces. That is the reason the subscription for London members is £1 1s. and provincial members 10s. 6d. Anyone would reasonably expect that a man who can afford to own and ride a motor cycle can afford half a guinea subscription to an organisation which is run solely for his and fellow riders' benefit. Unfortunately, everyone does not look at it in that light, and as we have previously explained, one does not always require the whole of the advantages offered at the guinea subscription. Therefore, the associate scheme will be welcomed, and we shall be very surprised if it is not the means of considerably augmenting the power—financially and otherwise—of the Auto Cycle Union.

When Doctors Agree.

IN the Spring Number last week an article "Motor Cycling for Health" was commenced. This article is composed of opinions of medical men who are actual users of motor bicycles or tricars, and the purport of this is to draw attention to the universal opinion that motor cycling is a most healthy pastime. Not infrequently one encounters a pessimist who, for reasons of his own, after urging every possible thing against motor cycling, finishes up with a statement that the vibration of a motor bicycle is bad for the health. Every rider of a modern motor bicycle knows that riding very long distances indeed is by no means uncomfortable. Even delicate and old men ride motor bicycles and enjoy riding them, too. Nothing therefore stands in the way of the cyclist who favours a motor cycle, except the first cost of the machine. Running expenses for a really good medium powered machine have been proved to be almost infinitesimal, and now that efficient motor cycles varying in power from 1¼ h.p. to 9 h.p. can be obtained, what more is wanted? We have already proved the immense amount of pleasure to be obtained from motor cycling, the reliability of the machine has been amply proved, and some business houses pronounce motor cycles indispensable. Now that doctors agree that motor cycling is a most healthy and exhilarating pastime, there is nothing to prevent the waverer who can afford a motor cycle from taking the plunge.

Our Historic Highways.

By REGINALD WELLBYE (Concluded from page 349.)

Of course, there was plenty of grumbling about the condition of the roads, particularly the Bath Road, so late as the reign of George II., but the people who suffered most did not have the repairing to do, and the parishes who did were too poor and their waywardens too ignorant to encourage any hope of improvement. A remedy was therefore sought by placing the main roads in the hands of trustees. But the grumbling still went on. People objected to have to pay tolls for the use of the King's highway, and in some parts the tollhouses and gates were pulled down and other acts of riotous violence committed.

Others who were willing to pay complained that the turnpikes took the money, but did not improve the roads. The fact was that things had got too bad to be mended very quickly, especially as there was very little known about the proper way to make up a road, and it was not till turnpikes had been in existence for many years that real reform took place. But by the end of the century the main roads had been made much better, and when the Fourth George mounted the throne, and what is looked back upon as the golden age of coaching dawned, high water mark was reached, and had there been motor cycles then the roads at least would have been no hindrance to their use, though coachmen, post-boys, and stage waggoners almost certainly would.

The high roads to-day are the roads of coaching days which have remained disused till the bicycle and the automobile came to claim them, and what they are the turnpikes made them. It was they who fixed the routes as they are now. At one time it mattered little whether a man going from London to York rode by Huntingdon, Stilton, Grantham, and Bawtry, or whether instead he passed through Buckden and Blyth and kept Grantham and Stilton on his right, but when one route became a hard turnpike road and the other remained rough and boggy it was quite another thing, and the latter was left to drovers and other folk to whom pence were more important than speed. By the same agency bends were shortened, new roads made, and old ones widened and furnished with milestones.

The Old Bath Road.

The grand breadth of the Bath Road nearly throughout is very different from its state 250 years ago. Like many other roads, before the country was enclosed, it was wide—so wide that Pepys could lose his way upon it—but the width merely consisted of three, four, or five obscure tracks abreast, formed as successive travellers had tried to find firmer ground for themselves. When, however, anything was done in the way of making it up, the carriageway was naturally, for economy's sake, kept as narrow as possible—eighteen feet, often enough. From this beggarly width the money our great-grandfathers tossed grudgingly and ill-humouredly into the pikeman's hand redeemed them. The cutting and embankments to be noted by the observant eye all along the principal roads, made to ease the trying gradients; the pumps, less frequently to be seen, that furnished water for dust-laying; and the little bits of abandoned road which often run at varying distances by the sides of the present highways they have had to make way for—all speak of an age in which comfort and rapidity of travel were being more strenuously pursued year by year. The emptiness of the now classic twenty-four hours' course, the great road between London and Edinburgh, was then very far from being dreamed of. By night and by day it was never quiet, never lonely. The quick tramp of horses' feet seldom died away for more than a few minutes, as coach followed coach and carriage carriage. The crack of the waggoner's whip, the cheerful warning notes of the coach guard's horn, and the lusty voice of the post-boy rang out with little pause on such a road of traffic as this, where the crunching of wheels went on alike in darkness as in daylight. The Dover Road, the highway that led to Plymouth, Telford's Holyhead Road—that masterpiece both of its maker and of his age—were equally full of life, and the host of other main roads throughout the country had all their part in those bustling roadfaring days.

Pump used for drawing water for laying dust on the main roads in the days of coaching. Several of these interesting relics may be seen on various main routes.

It is these associations that make our highways historic. The old life has gone, and of the generation that knew it scarcely a man remains, but the roads are there still, holding out at every mile some memory of what has been. The great cuttings near Dunstable and Petersfield are indelible, and it was not for

Our Historic Highways.—

under-powered motor cycles that they were dug, but for the relief of panting horses. We can still enjoy the straight four miles of Hartford Bridge Flats, famous among the old whips as "the fastest piece of road in England." At roadside places like Tetsworth, Stilton, or Boroughbridge, the atmosphere of the coaching age yet lingers, and an occasional petrol sign hung out before the sleepy inns cannot dispel the vision called up by the time-toned walls, the grass-grown courtyards, and the capacious yet almost empty stables—a vision of days when the place was given over to yellow-vested post-boys, many caped coachmen, stable boys, loungers, guests by the score, buxom landladies in dignified black silk, and genial hosts, whose hearty manner toned down the length of their bills. Amid such memories, among the ghosts of "Tallyhos," "Defiances," "Regents," Shrewsbury "Wonders" (ever so punctual that the rustics set their clocks thereby), "Quicksilvers" (which did the 211½ miles to Devonport in 23¾ hours), "Mazeppas," and "Telegraphs," of runaway couples in postchaises, chased by irate fathers, picturesque in periwigs and chokers, of hardy horsemen gripping at their pistols, of mounted highwaymen, and of other old-time travellers in legion, must the tourist wend his way when he fares along our historic roads.

1. The Swan at Tetsworth.
2. A village on the Great North Road.
3. Tetsworth, a typical coaching village.
4. An old toll-house near Thame, Oxon.
5. Hartford Bridge Flats on the Exeter Road, considered, in coaching days, to be the fastest stretch of road in England.
6. The chalk cutting through Dunstable Down on the Holyhead Road.

OCCASIONAL COMMENTS.

By "IXION."

Gudgeon Pins Adrift.

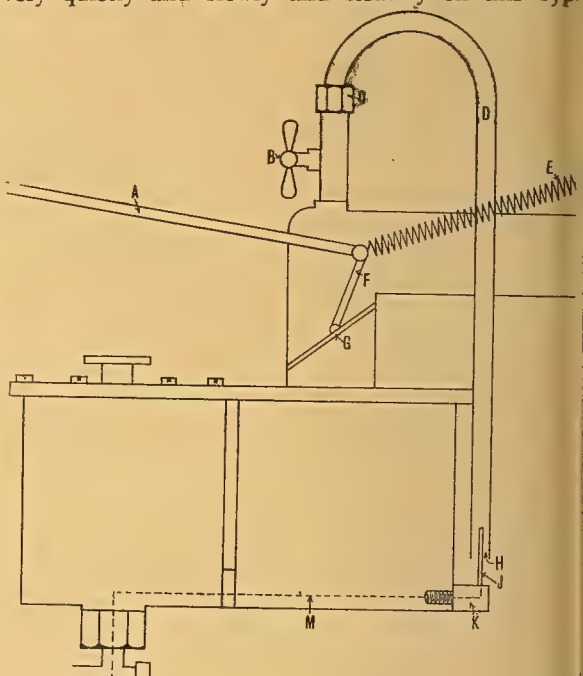
In describing how a loose gudgeon pin knocked a hole through the side of a cylinder, I stated the rider had afterwards experienced a great increase of power. I naturally put this down to the hole being just above the level of the piston at the bottom of its stroke, and so assisting the clearance of the exhaust. I am now corrected, however, and informed that the hole in one instance, at least, was below the bottom of the stroke, and that the increase of power was due to the release of crank case compression. It is only fair to say that some authorities deny the existence of any ill effects resulting from crank case compression. Still, at a certain crack hill-climb last year I saw a prominent trade rider and a prominent amateur competing with identical engines. The trade rider had made no allowances for crank case compression; the amateur had ingeniously arranged four or five release valves; and he defeated his trade rival fairly easily. This is not necessarily a case of cause and effect. The question is worth a scientific test in a laboratory.

Improvements to the 9 h.p. Riley.

A valued correspondent has sent me details of some fakes he has attached to his 9 h.p. Riley tricar, and as there are a good number of these fine machines on the road, I will give details, more especially as the points apply equally to other tricars. The first alteration concerns the front brakes. The rear brake is a metal to metal expanding. These brakes have a magnificent stopping power, but with every brake of this type there comes a day when the shoes are worn and need replacement. The worst of it is that as soon as the shoes wear beyond a certain point, the brake is absolutely useless, and that the change from high efficiency to entire helplessness may come within the limits of quite a brief run. Now we all know what tricar front brakes are—there has probably never been a tricar sold with front brakes that retained efficiency for more than 1,000 miles, and it is obviously a serious matter if all the brakes are simultaneously useless. My correspondent therefore increased the diameter of the front drums from 7in. to 11in. by fixing wooden rings over them and hooping those with iron bands, an inch wide and ¼in. thick, turning the whole true in the lathe. Iron brake bands of corresponding size, and hinged at the bottom, were then prepared, and lined with Dicks' Balata belting. Guides were riveted on the bands to keep them in register with the drums, and new fulcra provided for the operating mechanism. These brakes function magnificently, and maintain their power indefinitely. This is probably the only tricar on the road attaining the ideal of reliance on the foot-brake under all ordinary circumstances, with an immensely powerful lever brake constantly in reserve.

Fitting an Accelerator.

My correspondent has proceeded also to fit an accelerator. I differ from him in preferring to retain a hand throttle, and to use a pedal-operated valve lifter in conjunction with it. He first fitted up an extra throttle valve interconnected with the clutch, but this was not satisfactory. He then entirely removed the standard throttle lever below the steering wheel, and connected the throttle to a pedal set near the fo brake, conveniently for the right foot. The throttle closed when the pedal is up, open as it is depresse provision being made for the engine to run slowly wh the accelerator pedal is up. This is done in a curious complicated way, with manifest advantages. A copp pipe of ¼in. internal diameter is screwed into t inlet pipe between the engine and the throttle, and includes a small brass tap inset. The loose end this ¼in. pipe fits over a 2in. length of brass tube or $\frac{1}{32}$in. internal diameter. This brass pipe is screw into the cleaning orifice at the foot of the spray cha ber, and the annular space between the ¼in. and t $\frac{1}{32}$in. pipes allows the ingress of air. The device is all intents a separate self-contained carburetter w an invariable air inlet around the jet, the tap bei obviously provided to prevent suction on the separ jet when the full throttle is in use. The engine r very quietly and slowly and steadily on this byp



A. Throttle rodconnected to pedal.
B. Tap
C. Union.
D. Copper pipe ¼" inside diameter.
E. Take-off spring fastened to screw on inlet pipe.
F. Throttle lever.
G. Throttle disc.
H. Annular air space around jet.
J. Supplementary jet $\frac{1}{32}$" diam pipe.
K. Jet support screwed into cl ing orifice of carburetter.
M. Cleaning orifice through w petrol flows to supplemen jet J.

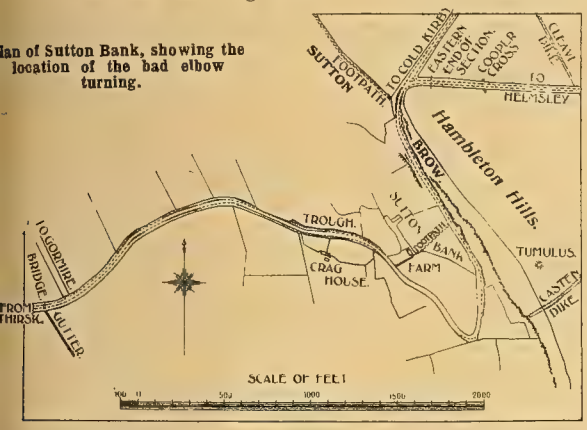
when the main throttle is absolutely shut, and it w even start on the bypass alone when free. The c buretter is a Longuemare. I must wait till I h personally handled the machine to say if this co plicated fitting is any improvement on the old pl of drilling the throttle with a hole no larger than w afford enough gas to keep the engine going. T owner says the device is practically automatic, whi a drilled throttle is not.

[Readers will be interested to know that an identi idea forms the subject matter of a patent by Imray (No. 10859).—ED.]

The A.C.U. Annual Open Hill-climb

AT SUTTON BANK, YORKSHIRE.

IT will come as a surprise to many of our readers to learn that the Auto Cycle Union has decided to hold its annual hill-climb on Sutton Bank—that famous Yorkshire declivity so ably described by Mr. B. H. Davies in *The Motor Cycle* of June 12th, 1907, page 463. Motor cyclists who intend to take part in this event or who are interested in it should refer to this article. We again give the contour sections made from the survey which was specially done for *The Motor Cycle*. For some months past the Union has been striving hard to obtain the use of a

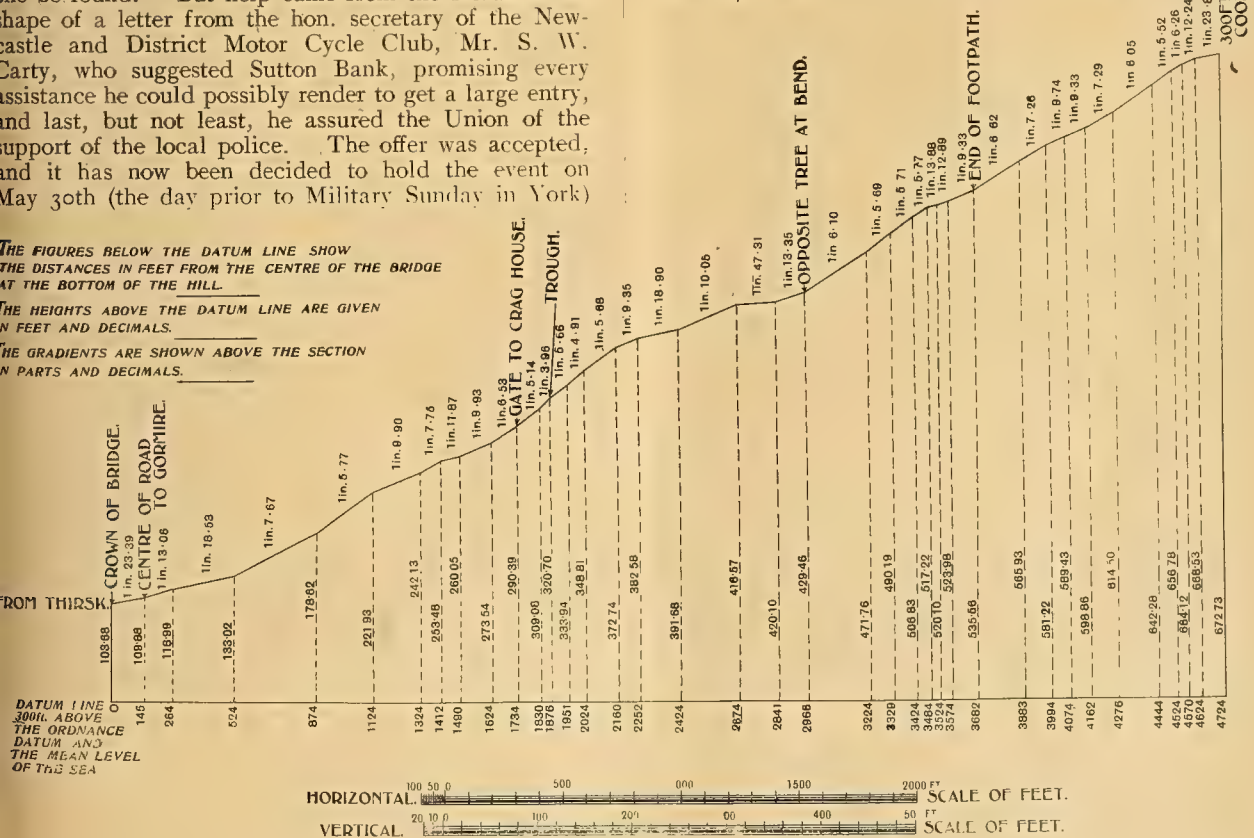


Plan of Sutton Bank, showing the location of the bad elbow turning.

hill situated in private grounds, but nowhere could one be found. But help came from the North in the shape of a letter from the hon. secretary of the Newcastle and District Motor Cycle Club, Mr. S. W. Carty, who suggested Sutton Bank, promising every assistance he could possibly render to get a large entry, and last, but not least, he assured the Union of the support of the local police. The offer was accepted, and it has now been decided to hold the event on May 30th (the day prior to Military Sunday in York) in conjunction with the Newcastle club. Sutton Bank is about five miles east of Thirsk, and is reached from London by following either the Edinburgh route *viâ* Wetherby and Boroughbridge or by going through York, the distance from London being about 200 miles. If the former route is taken York is avoided, and also the tollgate at Selby. The hill itself is most severe, and should be an excellent test. Its steepest gradient at the trough is 1 in 3.96, while 1 in 4, 1 in 5, 1 in 6, and 1 in 7 occur at frequent intervals. The length is about 200 yards short of a mile. The surface is for the most part bad, and in need of improvement, and there is one bad corner. The article referred to above leads one to suppose that a single-geared machine is of little use. If this is really the case, so much the better, as it will tend to encourage the much longed for two-speed gear. A good effect of holding the competition in Yorkshire will be to bring the northern and southern clubs more closely in touch with one another, while a number of entries from North-country riders, who will for the first time have a convenient opportunity of openly competing against their Southern and Midland *confrères*, will be welcome and acceptable on both sides.

The following classes have been arranged:

1. LIGHTWEIGHT.—For machines with engines having a cubical capacity not exceeding 350 cubic centimetres. Maximum weight of machine to be 100 lbs. Minimum weight of rider 140 lbs.


THE FIGURES BELOW THE DATUM LINE SHOW THE DISTANCES IN FEET FROM THE CENTRE OF THE BRIDGE AT THE BOTTOM OF THE HILL.
THE HEIGHTS ABOVE THE DATUM LINE ARE GIVEN IN FEET AND DECIMALS.
THE GRADIENTS ARE SHOWN ABOVE THE SECTION IN PARTS AND DECIMALS.
FROM THIRSK.
CROWN OF BRIDGE.
CENTRE OF ROAD TO GORMIRE
GATE TO CRAG HOUSE.
TROUGH.
OPPOSITE TREE AT BEND.
END OF FOOTPATH.
300FT. WEST OF COOPER CROSS.
DATUM LINE 300ft. ABOVE THE ORDNANCE DATUM AND THE MEAN LEVEL OF THE SEA
HORIZONTAL. SCALE OF FEET.
VERTICAL. SCALE OF FEET.

The A.C.U. Annual Open Hill-climb.—

2. SINGLE CYLINDERS.—For machines with engines not exceeding 80 mm. bore. Maximum weight of machine 180 lbs. Minimum weight of rider 154 lbs.

3. SINGLE CYLINDERS.—For machines with engines not exceeding 85 mm. bore. Maximum weight of machine 185 lbs. Minimum weight of rider 154 lbs.

4. MULTI-CYLINDERS.—For machines with twin cylinders not to exceed 76 mm. bore each cylinder. Maximum weight of machine 200 lbs. Minimum weight of rider 154 lbs.

5. MULTI-CYLINDERS.—For machines with twin-cylinders not to exceed 85 mm. bore each cylinder. Maximum weight of machine 226 lbs. Minimum weight of rider 154 lbs.

6. Open to entrants in either of the above classes.

8. VARIABLE GEAR CLASS.—Competitors to start from a standing start on lowest gear, with the rider seated on the saddle. No assistance allowed.

9. PASSENGER CLASS.—For quadcars, forecars, or sidecars carrying two passengers. Engines to have a cylinder capacity not exceeding 100 mm. bore each cylinder, or the equivalent in the case of engines with more than two cylinders.

Riders who fail to make up the prescribed weight will have to put ballast on their machines until the requisite amount is obtained.

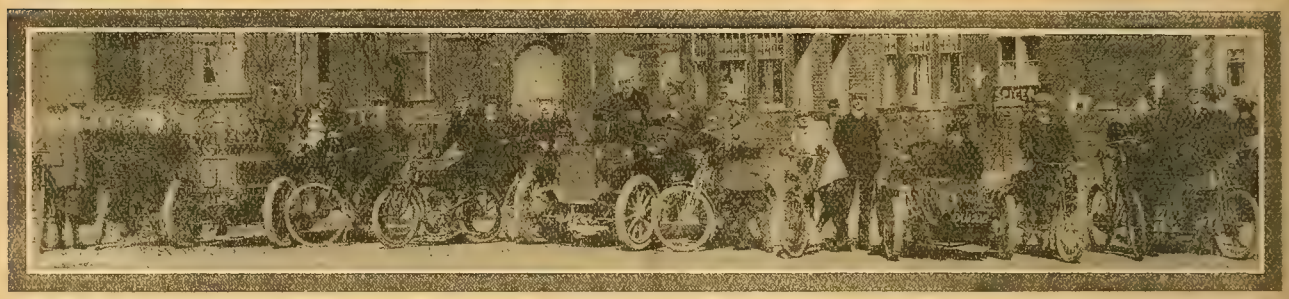
AWARDS.—Gold, silver, and bronze medals will be awarded in each class, provided there are twelve or more entries for each class.

ENTRY FEES.—10s. 6d. per machine. Members of affiliated clubs and private members of the A.C.U. 7s. 6d.

We call particular attention to the rules regarding pedal assistance and weights of riders, which we think is a most admirable feature of the competition, viz.:

PEDALLING.—No pedalling will be permitted. The machine which travels farthest up the hill without pedal assistance to be the winner in each class.

No starters' assistance will be allowed.



Some members of the Basingstoke and District Motor Club prior to the opening run of 1908.

Auto Cycle Union News.

AFFILIATION.—The following clubs have become affiliated to the Union: The South Eastern Auto Cycle Association, the Cambridge University Motor Cycling Club, the Bolton and District Motor Cycle Club, the Cambridgeshire Motor Cycling Club, the Crewe and District Motor Club, the Blackpool and District Motor Cycle Club, and the Surrey Motor Cycling Club.

ASSOCIATE MEMBERS OF THE A.C.U.—The Auto Cycle Union has at last decided to take up the matter of organising a scheme to enrol associate members at 5s. a head into the Union. At a recent committee meeting it was decided to hand this business over to the Relations Committee.

THE QUARTERLY TRIALS.—The following competitors having experienced no involuntary stops (excluding punctures) have been awarded non-stop certificates: F. W. Newsome (3½ h.p. Triumph), G. Lee Evans (3½ h.p. Rex), W. G. McMinnies (3½ h.p. Triumph), C. R. Taylor (3¾ N.S.U.), J. S. Shaw (5 h.p. two-speed Phänomen), H. G. Partridge (6 h.p. N.S.U.), F. W. Applebee (5 h.p. Rex), F. W. Applebee, jun. (5 h.p. Rex), G. L. Fletcher (2 h.p. Moto-Rêve), J. V. Robinson (1¼ h.p. Moto-sacoche), and Reginald Samson (3½ h.p. L.M.C.). The following competitors were disqualified for exceeding the minimum time: H. Newey (3½ h.p. L.M.C.), J. Beck (2½ h.p. Fairy), P. Phillips (2¾ h.p. Douglas), and W. Douglas (2¾ h.p. Douglas). All the latter earned a first-class certificate, as they experienced no trouble, but they will probably adhere more strictly to schedule time in future.

A few members of the Ayr and District M.C.C. assembled for the opening run from Burns Statue Square. The club now numbers 28.

Being the opinions of medical men who are actual users of motor bicycles or tricars.

(Continued from page 354.)

. Fox.

If a man has reached, or has not et too far passed, that milestone in ife's journey which marks his physical enith, he can adopt no pastime better alculated to preserve his strength of nuscle and of nerve than that of motor ycling. Improved circulation and deeper reathing—these invigorate his vital rgans, without that call on endurance which only still further exhausts an lready jaded brain. In short, the notor cyclist gets the benefit of hard xercise without its fatigue. From this oint of view—as a means to health— favour a well sprung lightweight. It ffords some scope for muscle, while et avoiding tension on the nervous ystem.

. 116.

(1.) Motor cycling is as healthy as ny other pastime, with the exception hat the liver gets no exercise, unless he engine refuses to fire, and then the xercise may be excessive. (2.) The notor cycle is the hardest worked and ost reliable conveyance I have, and 3) the cheapest to run with the excepion of an ordinary bicycle. (4.) With n experience of horse, motor car, triar, and motor bicycle, I would advise or a country doctor a motor bicycle for ry roads, and a motor forecar with etachable seat for wet and grease. Both machines to be of same make, .p. and gear, so that parts will be interchangeable, and essentially easy tarters.

elby Clare.

I consider motor cycling a most inigorating and healthy exercise, the dvantages of being able to go long listances, with little or no fatigue, and ee many places practically inaccessible y other means. Professionally, a notor cycle is a great boon, always eady for a journey, and never tired. Weather has no effect on motor, and ide-slip, when one is accustomed to iding in grease, is practically unnown, although I use plain tyres all he year round. Cost is a mere nothing n comparison to a horse and trap. A notor cycle costs about £1 10s. per nonth, including depreciation and verything, whereas two horses would ot do the work, and would cost £6 per nonth. The most suitable form of notor cycle is a medium weight single-ylinder, change-speed, belt drive, of etween 2¾ to 4 h.p., according to disrict.

F. C. James.

I find motor cycling a perfectly healthy pastime; the vibration is negligible. I infinitely prefer motor cycling to horse traction in fine weather, the speed is double and the cost about half. The total cost, including depreciation, has been 1.865 pence per mile, averaging 2,800 miles per year for four years. I do all repairs except engine replacements. The motor bicycle must be as light as possible, comfortable, an easy starter, magneto ignition, with rubber belt and adjustable pulley; the engine, preferably a single-cylinder, giving enough power to climb with certainty any hill in district in any weather, geared 6 to 1. A two-speed gear will only be an advantage (as procurable at present) in exceptional districts.

T. 17

(1.) I commenced motor cycling in May, 1903, and have ridden nearly every day since then, wet or fine. In moderation, and if a reasonable speed is maintained, I think the pastime a healthy one. But where much difficulty is experienced in starting a heavy motor, the exertion might be injurious. (2.) Could not do my work without it, or a motor of some sort. (3.) The cheapest method of travelling I know of. (4.) 3½ or 4 h.p., low frame, moderate weight, no pedals, magneto, belt driven (rubber), free engine. No experience of variable gears. Personally, I ride and am satisfied with a Roc.

Dr. R. W. H. Meredith, whose opinions were published on page 352 last week.

Chas. John Lathbury, L.R.C.P.

After doing all my work for five years on a 2¼ h.p. motor cycle, I have found it most decidedly healthy and invigorating, and I have never enjoyed such good health and spirits. I can do double work in half the time, and with much less fatigue than riding in a horse-driven conveyance; besides, it is of signal service for urgent messages. I should estimate the cost at least half. I would advise a 3 h.p. machine with magneto and free engine or two-speed gear.

S.J. 17.

If a doctor is not a septuagenarian, and hasn't a "top hat" practice, the motor cycle, besides being a splendid healthy sport, is capable of being of immense service to him in getting through his rounds. It is the cheapest form of locomotion I know—cheaper even than "push" cycling in view of time saved and fatigue lessened. But overalls are a nuisance. They must be worn and must be put off and on many times a day. Many visits entail many restarts, so to avoid fatigue a lightweight magneto is required. In winter I have found a single-seated Phœnix Trimo (with bonnet in front for instruments and dressings) very handy and reliable.

R. A. Slessor.

Motor cycling is a very healthy pastime. The appetite is stimulated, and as tissue waste is diminished unless exercise is taken in other directions weight goes on rapidly. Exposure is less felt than in a trap. After three years I can say that my eyesight, my hearing, my steadiness of hand, are as good as ever. The vibration bogey may be disregarded. I calculate I save £70 per annum with my motor cycle. I can go to the outskirts of my practice with a promptitude that amazes my patients, and does me no harm professionally. I have seldom failed to keep an appointment. For a young man building up a practice a motor bicycle is a most valuable asset. For this and other reasons I consider a 3½ h.p. of the best grade, and all that that implies, the ideal mount for a doctor with country work to do. Instruments, bottles, etc., are best carried in a knapsack on the back. I have done my practice for the past three years with a 1905 3 h.p. Triumph.

(To be continued.)

Preparations for the London to Edinburgh Run.

By ARTHUR W. BENTLEY.

THERE appears to be no doubt in the minds of some as to the manner of entering for the annual twenty-four hours run of the Motor Cycling Club. First of all it is necessary to become a member of the Motor Cycling Club, and prospective competitors should apply to Mr. A. Candler, of 1, Lime Grove, Shepherd's Bush, W., for an entry form and full particulars.

Assuming that the rider has entered for this popular run, the next point to be considered is the all-important question of the machine that is to carry him to victory. Any well-known make of motor bicycle is equal to a continuous run of twenty-four hours if in proper running order and properly equipped, but nothing must be left to chance. Such being the case, a general overhauling will be necessary, which should, if possible, be carried out by the competitor himself, or if he does not feel that he is sufficiently competent to undertake the task alone he should endeavour to procure the help of some friend who thoroughly understands the "tuning up" process. By so doing he will learn much that will be of assistance to him in time to come.

Overhauling Motor Bicycle not Difficult.

The whole process of a general overhauling is not a complicated matter, and as a rule merely consists in removing the cylinder, scraping away any carbon deposit that may have formed in the cylinder and the piston head, fitting new piston rings, if necessary, grinding in the valves and seeing that the springs are of proper tension, adjusting bearings, etc., and seeing that the carburetter, tank, and pipes are in order and clean. Of course, there are sundry other items that will require attention, such as swilling out the crank case with paraffin; but as a rule the above will comprise all that will be necessary in a general way. The ignition apparatus should receive careful attention and be kept scrupulously clean. Having seen to the engine, the bearings of the wheels and other parts of the machine itself should be carefully looked over and oiled, all nuts being tightly adjusted and everything generally put into ship-shape order.

The Question of Tyres.

Carelessness over the matter of tyres has accounted for more failures in these long distance runs than any other cause, and it behoves the rider to very carefully go over the tyres, and to discard any patched tubes or covers that show signs of wear, as it is exceedingly annoying, and prejudicial to his chances, to be continually held up by punctures or bursts. Concerning air tubes. Personally, I prefer butt-ended tubes, and I should carry two spare ones, as in case of puncture it is a simple matter to remove the punctured one and replace with a spare, and it takes about half the time and trouble as mending a puncture on the road, and especially is this the case if the tyre punctures in the dark. With a butt-ended tube you can wait until y reach the next control, when you can sit down comfort and do whatever is necessary, and in probability make a far better job of it.

As regards the belt, I should advise a rubber c and a spare cut to the proper length, and both of th fitted with detachable fasteners, as in case the b stretches and begins slipping or requires changing any other cause it can be replaced in a few momer Here, again, any belt shortening can be more satisf torily accomplished at the next stopping place un shelter, in warmth, and after a meal.

Lamp Reflections.

I should strongly advise a powerful lamp (as pov ful as possible, in fact), as the road may be stra to the majority, and if it turns out a wet, dark nig it may make just all the difference between comfort discomfort. A small spare lamp can be carriec desired, as it may come in handily in case of breakdc in this department. Then the all-important quest of spares. So far as I am concerned, I always ca with me a most comprehensive supply, including sparking plugs, sundry spanners (one adjustable t will fit any sized nut on machine), screwdriver, punch, two belt fasteners, puncture repair outfit, sp valves with spring and cotter complete, a small sup of nuts and screws, magneto spanner, spare magr contact breaker, files, sundry washers, etc., oilca insulating tape, some copper wire, and pair of pli They do not take up very much room, and are a g help in time of trouble. Many a time has a ri scoffed at my supply of spares before we have sta on a tour, and many a time has the laugh been on other side before the end of the run when he has hac beg the loan of one of them.

Final Preparations.

The spares should be very carefully packed to p vent damage, and after taking the machine for a f spin to see that all is as it should be we have only await the eventful day.

When the day does at last arrive it is advisable take things as easily as possible, as it is not pleas to start out on a run of 400 miles feeling dead ti after a hard day's work. Just before leaving hc for the start have a good hot supper, wrap up w procure a really good pair of goggles, put some li provender in the pockets in case of trouble on the ro carry a flask, as a little warmth in the early hours the morning is very comforting, and start out with firm intention of finishing. When you have left lights of London behind do not attempt to scorch about thirty-five miles per hour; there is plenty

Preparations for the London to Edinburgh Run.—

time. In case of an adjustment being necessary, set about it quietly, and do not start again until it is right, as a hurried repair will waste more time later on.

Provided that these elementary precautions are carried out, one can start with the sure knowledge that one is far more certain to succeed than to fail, and my advice to anybody who has not yet taken part in this run is, "Do it," you will thoroughly enjoy it.

The Cost of the Trip.

Regarding the question of the probable expense, the M.C.C. entrance fee is 5s., annual subscription town £1 1s., provinces 10s. 6d., and entrance fee for the run 10s. 6d. = £1 16s. 6d. in all. As regards the first two items, I do not think these can fairly be put down to the expense of the London-Edinburgh run, as there are numerous other advantages of being a member of this sporting and enterprising club. The purchase of any spare parts should likewise be left out of the calculations, as these must be carried on any long run.

The cost of running the machine for 400 miles—this is a point the rider must know for himself better than anyone else. At any rate, this is a very small item—2s. per 100 miles at outside. There are four meals to be reckoned—two breakfasts, lunch, and tea—say at 2s. each = 8s., and a night in Edinburgh—say 15s. at the most. Then lastly there is the return journey, which means a two days' ride. Last year I left with £3 3s. in my pocket, and when I arrived home again I had not exhausted my supply.

I think one can therefore fairly say that the whole cost of the run, excluding subscriptions, would work out at somewhere between £3 and £4, and money well spent, too. I append the route followed last year, so that prospective competitors may have ample leisure in which to study it.

Time.	Place.	Total distance.	Checking place.
P.M.			
10.0.	Highgate	0	... Start
11.3.	Hatfield	15¼	... Check
A.M.			
12.23.	Biggleswade	40	... Check
2.43.	Stamford	84¾	
3.45.	Grantham	105¼	
4.20.	Newark	119¾	Control and check
Dep. 4.58.			
5.37.	Tuxford	132¾	
6.53.	Doncaster	157¾	... Check
7.55.	Micklefield	178¼	
8.26.	Wetherby	188½	Control and check
Dep. 9.0.			
9.36.	Boroughbridge	200½	
11.0.	Scotch Corner	228½	... Check
11.24.	Darlington	236½	
P.M.			
1.2.	Newcastle	269½	... Check
Dep. 1.34.			
2.18.	Morpeth	283½	
3.17.	Alnwick	303	... Check
4.0.	Bedford	317½	
4.47.	Berwick-on-Tweed ...	333	Control and check
Dep. 5.15.			
6.48.	Dunbar	363	... Check
7.54.	Levenhall	385	... Check
8.40.	Edinburgh	391	Sign sheet at Royal Hotel, Princes St.

This year competitors will stop at the George Hotel, Grantham, for breakfast.

A MOTOR CYCLE SPEEDOMETER.

From time to time we receive enquiries from riders who are anxious to obtain a reliable speed indicator for motor bicycles. Messrs. Markt and Co. are now turning their attention to a motor cycle pattern of the well-known Jones speedometer, which gained the highest possible awards in the R.A.C. speedometer trials held in 1906. The motor cycle speedometer is built on exactly the same lines as these successful instruments, viz., a heavy metal ring floating on steel centres mounted on and at right angles to a revolving spindle, which is connected so as to bring the indicating needle to a position in accordance with the rate of revolution of the spindle, and consequently according to the position taken by the governor ring at that rate of revolution. The mechanism is extremely simple, and unlikely to get out of order. For motor bicycles the method of drive is by friction, which is efficient and extremely simple. It will be noticed on referring to the illustration that the instrument is resting on an arm, to which it is attached by means of four screws. The driving ring is then carefully centred and clipped on to the spokes of the front wheel; this is in contact with the rubber shod ring driving the mechanism of the instrument. Our illustration shows the Jones speedometer calibrated to register kilometres per hour, but, of course, speedometers to indicate miles per hour will be sold exclusively in this country. These instruments should supply a long felt want, but it must be distinctly understood that they are well made and scientifically constructed, so that they cannot be sold at a low price; still, the price at which they are sold should be well within the range of the man who pays £50 for a motor bicycle. It is interesting to note that one of these speed indicators was used with great success by Mr. T. K. Hastings in last year's A.C.U. six days trials, while in America they are supplied to the New York Police.

The Speedometer fitted to a motor bicycle.

Mr. Reg. Samson, who made the fastest time in the Birmingham M.C.C. hill-climb on the 2nd inst. at Rose Hill, Rednal, used one of the new Lyso rubber and canvas belts made by Lycett's Rawido Belt Co., Ltd., on his L.M.C. motor bicycle. The same belt carried him successfully through the A.C.U. Quarterly Trials on the 29th ult., when he secured a non-stop award. It will be remembered that the Lyso belt has transverse grooves on the top as well as on the underside of the belt.

QUESTION & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied with a stamped addressed envelope for reply.

Non-sooting Plugs Wanted.

I see in a recent issue that a rider of a twin-cylinder machine is troubled with his sparking plug in the back cylinder getting oiled up, and that you recommend a non-sooting plug, that is, one with the points protected. I should be greatly obliged if you could let me know where I could obtain these plugs, as I am troubled in the same way with the plug in the back cylinder of a four-cylinder F.N.?—F.P., Oakham.

A suitable plug for your purpose would be the L.M., sold by the United Motor Industries, Poland Street, W. These plugs are made in two forms, and we should advise you to get one of each. These two types are (1) with capsuled end, and (2) the magneto plug. We have found one of the former to be most efficient with a magneto, and practically incapable of sooting up.

Petrol Supply Impeded.

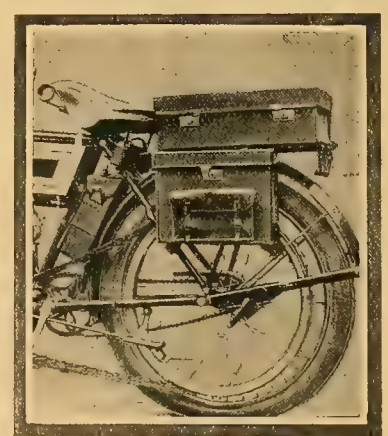
Have just had a R.O.M. contact breaker and B. and B. carburetter put on my 5 h.p. twin-cylinder Sarolea. The carburetter has been altered to take a Longuemare jet in lieu of a single jet. I use the machine with a sidecar. When it goes it is a good deal more powerful than before the alterations, but it keeps on stopping, usually just dies away. Sometimes it will go for two or three miles, at other times only a few hundred yards. It will nearly always restart after a short halt, and will invariably run well on the stand. My own idea is that it is not feeding properly, yet the carburetter and all its pipes are quite clear. Can it be the level of the petrol in float chamber is wrong; and if so, how can the correct level be ascertained?—G.W.W., Kent.

It is just possible that there is no vent hole in your tank which causes the latter to become air bound, or there is dirt in the tank, preventing the petrol flowing freely. Are you sure that the trouble is not overheating? The petrol should come up to within $\frac{1}{8}$in. of the top of the jet orifice. Remove the jet and then turn on the petrol tap when the machine is quite level, and the height to which the petrol rises can be noted. If you wish to raise the level you must slightly lower the weight which is soldered to the needle valve.

Adjustment of Trembler Coils.

The coil on my Excelsior motor bicycle is a trembler pattern. The other day I had the engine running on the stand, and it seemed to go all right, but next morning I could not get it to start. On examination I found the coil did not tremble, although nothing had been disturbed. All the connections seem to be in order. How should I proceed to rectify? The accumulator is all right. Would you recommend me to have the coil tested? If so, would you recommend a good firm, as I cannot see any maker's name on the coil I have?—C.P.

Test the circuit with a test lamp or voltmeter at the contact breaker, and so see that the current is reaching this portion of the machine. If you find that no current is reaching the coil then you may be quite sure that the fault lies between the accumulator and the coil. If the current does reach the coil, and yet the latter shows no signs of being excited, you must take out the screw and trembler blade, and clean the platinum points with a fine jeweller's file, leaving them quite smooth and flat. If you readjust the screw and there is no "buzz," you can take it that the coil is at fault, provided accumulator shows over four volts.



With the advent of the touring season, the above is interesting, showing a motor bicycle equipped with Brooks's touring outfit. The padded saddle, the belt, and the steel-studded non-skid tyre, are also by J. B. Brooks and Co., Ltd.

Ordering a New Machine.

I am giving an order for a Minerva motor cycle, and shall be glad of your help, as I am rather undecided whether to go in for a 2$\frac{3}{4}$ h.p. or 3$\frac{1}{2}$ h.p. It will be my first motor cycle. I am about thirteen stones, and rather fancy the lower power machine. Will 2$\frac{3}{4}$ h.p. be powerful enough? I thought of having magneto ignition and spring forks. Do you think the machine is built low enough? I reach a 24in. push cycle with ease.—M.A.

As you weigh thirteen stones it would be better to invest in a 3$\frac{1}{2}$ h.p. unless, of course, the country in your district is not excessively hilly, and you do not intend touring in the hilly parts of England. We recommend you to specify magneto ignition and spring forks. The frame is low, and should be just the right size for you.

A Light Tricar or Sidecar.

I wish to get either a tricar or sidecar. A friend of mine advises me to get a sidecar for the following reasons: A sidecar takes less engine power than a tricar, will keep cooler, and does not require water-cooling, will absolutely prevent side-slip, whereas the back wheel of a tricar slips about. It is easier to start, will run further on a gallon of petrol, is more sociable, and, in fact, is far preferable to a tricar unless I can afford a larger sum for water-cooling, two-speed gear, etc. He advises a 3$\frac{1}{2}$ h.p. motor cycle of good make, air-cooled, with sidecar, and says that it will take me anywhere on main roads with the help of the pedals on bad hills. Combined weight of self and wife nineteen stones. I shall be obliged if you will give me your advice, as I am quite a novice, and if I make a mistake and get a bad machine it will have to be goodbye to motoring.—S.E.H.

Your friend's advice seems to be quite sound. However, without a two-speed gear the machine could not be expected to go up every hill you come across, but if you have the bicycle geared properly (*i.e.*, not over 5 to 1), and are not averse to assisting with the pedals on steep hills, a great amount of fun can be got with a 3$\frac{1}{2}$ h.p. bicycle and sidecar attachment. Use an extra strong belt for passenger work.

Feeble Firing in Front Cylinder.

I shall be obliged if you will help me in a difficulty with my 5 h.p. Peugeot. Although the machine is quite a fair hill-climber, the front cylinder seems to do very little work in comparison to the back. When I depress the inlet valve plunger in front cylinder the back cylinder continues firing steadily, but if I depress plunger on back cylinder the front only fires a few times feebly, and it fires back to the carburetter. I have ground valves in carefully and fitted new washers and tested compression with oil, but can hear a blowing out in front cylinder. I cannot find out where it is. If you think there may be a blow-hole or cracked exhaust valve seating please let me know where I could get same repaired. The blowing out is only slight, and ought not to make such a difference in the power of the two cylinders. I have fitted new exhaust valve springs and have got inlet valve springs of equal tension. Carburetter is quite clear.—A.M.C., Leicester.

Very often with a twin-cylinder there is a difficulty in getting both cylinders to fire evenly. Probably the inlet pipe union or the valve itself is not a gas-tight fit. In this case you will get a leakage which would account for the noise you hear. Spread oil around all the joints of front cylinder and look closely for small bubbles when testing the compression. A slight loss of compression will mean decreased power. You should also be very careful to see that both inlet valve springs have the same tension. If, on the other hand, the trouble is due to a cracked inlet valve seating, the only cure is a new cylinder. It is also possible that one cylinder gets more oil than the other, and it may be that the front one will require new piston rings. The blowing you hear is most likely a leakage past the valves. See the experience of "F.J.," Middlesbrough, on this page.

The "Best" Sidecar.

Will you give me your opinion or advice upon which is the best sidecar to use with my two-speed 5 h.p. Rex de Luxe? There seems to be so much difference of opinion that I am quite at a loss to know which to embark upon. I want to know the best, combining ease of steering, attachment, and absence of skidding.—E.W.B., Birkenhead.

We regret we cannot tell you the "best" sidecar. The choice of a sidecar is chiefly a matter of personal taste. If you can drive a tricycle and like a rigid sidecar you cannot do better than purchase a Chater-Lea or Mills and Fulford. If you must have an attachment that can be attached and detached in one minute, and can be steered easily by any cyclist, then the flexible type made by W. Montgomery and Co. will suit you.

Vivian Olsson (5 h.p. Vindec) nearing the finish of Sharpenhoe in the M.C.C. members' competition.

Amount of Play in Bearings.

(1.) Is it correct for a piston to have a certain amount of side movement (when cylinder is detached) on its rod? (2.) Also when the engine is pedalled on the stand, or when the pulley is turned backwards and forwards by hand, there is a very slight clanking sound (it is not the valves). I think it must be when the piston changes from upward to downward movement, or *vice versa*. It sounds as if the rod had a little play on its pin, and taps against the pin when the direction of rotation is changed. Do you think this is all right? I suppose there must be a certain amount of play, otherwise the rod could not work freely.—R.C.

(1.) A slight amount of side play is quite necessary, but no vertical play, either on the gudgeon pin or crank pin, should be permitted. (2.) The clanking may be due to the tappets which raise the valve knocking against the rocking arms, that is to say, that the noise is not necessarily the valves, but it may be the valve gear. On the other hand, if there is any play in the piston rings, gudgeon or crank-pin bushes, they should be renewed as early as possible.

READERS' REPLIES.

Leak of Compression causes Hissing.

During a long run at Easter I found out what had puzzled me for some time, viz., the cause of a constant hissing whilst the engine was running. At first I thought of leakage through sparking plug or valve caps, but on tightening these up there was no improvement. Later I examined exhaust valve and found it pitted very much. When valve was reground the hissing disappeared.—F.J., Middlesbrough.

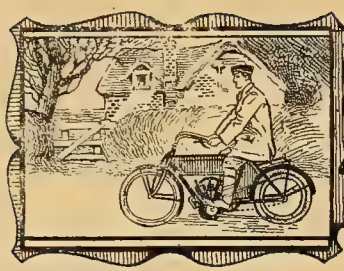
Overheating and Loss of Power.

I see by your issue of April 22nd that F. T. Kent is troubled with overheating and loss of power with a 3½ h.p. Brown. I had an exactly similar experience with the same make of machine during the first two months it was in my possession, and after tinkering with it in every conceivable way, and having almost made up my mind to return it to the makers, I absolutely cured the trouble by opening up the holes in the silencer. Hoping this information may be of use to your correspondent.—Dr. P. M. Moore.

How to Prevent Explosions in Silencers.

In your issue of the 29th "F.M." asks, "How to prevent explosions in the silencer?" and with a view to finding a remedy for such unpleasant noises I have experimented while driving my little 2 h.p. Minerva, and can produce and prevent explosions at will by the following means: When the machine is running well, and mixture and all else is apparently correct, I get explosions in the silencer if I lift the exhaust, and a louder one immediately I drop it. When I switch off the current and lift the exhaust, and then switch the current on, I get explosions, and should I at the same moment or later drop the exhaust I am certain of one or more loud reports from the silencer. But when I switch off and lift the exhaust at the same time, and wish to start again without noise, I drop the exhaust and allow the engine to make a couple of revolutions before I switch on the current. This plan has not failed with my engine, and I must say riding is much more pleasant now that it is possible for me to drive for a half-day and not once get an explosion in the silencer. If you think this may be of service to "F.M." I shall be glad to see it published. I always like my little experience and experiments to be of use to others as well as to myself.—Frank H. Stevens.

"THE AUTOCAR" contains each week much interesting information which, although written in regard to motor cars, is also applicable to tricars and motor bicycles. It is published weekly, price 3d., and can be obtained from all newsagents and bookstalls.



CURRENT CHAT.

SPECIAL FEATURES.

PREPARATIONS FOR THE LONDON TO EDINBURGH RUN.

THE A.C.U. ANNUAL OPEN HILL-CLIMB.

MOTOR CYCLE HANDICAP AT BROOKLANDS.

The Spring Number.

We beg to thank those of our readers who have congratulated us on the excellence of the Spring Number.

American Riders in the End-to-end.

Mr. Oscar Hedstrom, of the Hendee Mfg. Co., America, who signified his intention of competing in the A.C.U. End-to-end Ride, fears that owing to pressure of business he will not be able to compete, or send anyone over for that purpose.

Tour de France Reliability Trials.

A good number of motor bicycles and tricars are competing in the Tour de France Trial of the French Auto Cycle Club. Competitors left Paris on Monday last, and will visit during the week Dijon, Clermont-Ferrand, Limoges, Bordeaux, Tours, and Paris, a total distance of 1,600 kilometres—993½ miles. Among the well-known makes of motor bicycles in the quarter of a litre class may be mentioned the Quentin, Alcyon, Lurquin-Coudert, and Peugeot. An engine of a quarter litre capacity is equal to a bore and stroke of 64 by 70 mm., which is the size of the 1¾ h.p. light-weight F.N. In the light-weight class there are Alcyon, Griffon, and Werner machines. The tricars, with the exception of the Ronteix, are of new makes and practically unknown to English riders. They include such names as Furan, Soureau, Berujeau, etc. The list of successful competitors will be given in due course. They arrive back in Paris next Sunday.

Brice on the Warpath Again.

In the Sharpenhoe Hill-climb on the 2nd inst.. R. M. Brice, on his 3½ h.p. Brown, made the fastest time of the day, excepting that one twin-cylinder machine beat him by two fifths of a second. He used Dunlop tyres on his machine.

The Output of Sidecars.

Sidecar attachments appear to be most popular, judging from a letter we have received from W. Montgomery and Co., which states that they recently despatched in a single week no less than twenty-seven of their flexible pattern sidecars.

Motor Cycle Club for Nottingham.

Mr. E. G. Young, Trent Bridge, Nottingham, writes that the organisation of a club for Nottingham and district is proceeding satisfactorily. In our next issue we expect to be able to announce particulars of the first meeting, giving time and place.

Germany's Trade in Motor Cycles.

During the first quarter of 1908 Germany imported 104 cwts. of motor cycles against 101 in the same period of last year, but the value remained the same. Belgium and Austro-Hungary supplied the bulk of these, the former selling 66 cwts. and the latter 20. Still comparing like periods for the two years, Germany's sales abroad dropped from 992 to 796 cwts. Great Britain, however, bought almost as much as before, her purchases reaching 280 cwts. against 286 in January-March, 1907. But Holland's purchases fell from 100 to 10 cwts., and Denmark's from 212 to 134 cwts. The state of the automobile trade in Germany leaves much to be desired; the figures for cars and industrial vehicles are as unfavourable as those here cited.

Motor Cyclists' Ideal Road.

A start has already been made tarring the Folkestone Road. By early summer the whole of the road from London will have been treated. Thirty tar-spraying machines have been purchased for use in Kent.

Essex M.C. Open Hill-climb.

This hill-climbing competition takes place at Lippett's Hill, High Beech, on Saturday next, the 16th inst. There are five classes in all. A unique handicap has been arranged in the motor cycle classes which should prevent the usual grumbling at a competition of this nature.

FUTURE EVENTS.

May 14—Finchley Harriers' First Motor Cycle Race at the Stadium.
" 11-17—Auto Cycle Club of France Reliability Trials.
" 16—Essex M.C. Open Hill-climb at Lippett's Hill, High Beech.
" 30—Auto Cycle Union Open Hill-climb on Sutton Bank, Yorkshire.
June 5-8—M.C.C. LONDON-EDINBURGH RUN and return for Schulte Cup Competition, and special cup for motor bicyclists.
" 6 and 8—Brooklands A.R.C. Whitsun Meeting.
" 20—Entries close for M.C.C. Team Competition at Daventry.
" 27—M.C.C. INTER-TEAM TRIALS for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., and Birmingham M.C.C.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 4—Brooklands A.R.C. Meeting.
" 6-7—A.C.F. Grand Prix Races for Cars.
" 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
" 14 and 15—M.C.U.I. (Ulster Centre), Open 400 Miles Reliability Contest.
" 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4—M.C.C. Run from London to Land's End and Back for Charles Jarrott Cup.

Savage Southampton.

A local reader in sending us a list of motorists recently fined at Southampton for exceeding the speed limit, says he would advise all motor cyclists to avoid Southampton and district for the next few months. We regard his advice as sound, seeing that eleven motorists who were summoned paid fines amounting to £40 10s., not including costs. The trap is in Winchester Road, and a quarter of a mile in length.

Repairing Petrol Tanks.

"F.W." writes warning others not to attempt any soldering on a petrol tank without using the utmost precautions. He recently took an old tank out of a motor cycle frame and then swilled it out thoroughly with water several times. After allowing it to stand for about twenty hours so as to clear off any gas or vapour, he commenced operations with a soldering iron, but he had hardly got the metal nicely flowing when there was a terrific explosion which blew the tank side out. Fortunately for "F.W." the force of the explosion was spent downwards and he suffered no personal harm, but the experience should be noted by tank repairers.

The M.C.C. London-Edinburgh 24 Hours Run.

The time for sending in entries for the above popular run has now arrived. Starting from Highgate at 10 p.m. on Friday June 5th, competitors who reach Edinburgh within twenty-four hours will receive gold medals and those arriving within third hours will be awarded a silver medal. Regarding the return journey, the Schulte Cup is for competition among drivers of motor cycles and cars, the catalogue price of which does not exceed £250 complete. The M.C.C. challenge cup is for motor bicyclists only.

A Projected Long Ride.

Just as Lieut. Edward Noel was on the verge of his departure from Bombay for England by motor bicycle, he was stopped by the Government on account of the succession of robberies and murders in the country through which he had proposed to travel. He has therefore had to omit the first 500 miles of his trip, and proposes to start somewhere in Palestine, probably Haffer, thence his route will be through Jerusalem, Damascus, Aleppo, to Constantinople.

Snowed up in the New Forest, between Ringwood and Romsey, April 26th. *Photo by H. D. Crook.*

lice Traps.

We are informed by a correspondent at motorists are being timed on the ath Road between Atworth and Shaw, d he strongly recommends the A.A. send scouts to deal with the matter. There are also two traps on the psom Road, one a mile from Ewell oming from London), the other be- veen Ewell and Epsom.

Alteration in Motor Taxes.

A reduction in the Inland Revenue x, wished for by motor cyclists, is ot to be. The present tax of 15s. on otor cycles, also the absurd extra tax 15s. on attachments such as the riel coupler and trailers, remain un- tered, as the subject of motor taxa- on was not mentioned in the Budget.

tor Cyclists' Congress on the Rhine.

On May 28th the German Motor yclists' Association, founded on May th, 1903, at Stuttgart, and which has w some 13,000 members on the roll, lds its general meeting at Bingen. here will doubtless be a big crowd at e congress, as the Rhine district is e on which the German people may stly pride themselves.

tor Union Visit to Bournemouth.

The tenth provincial meeting of the otor Union will be held at Bourne- outh on Saturday, May 23rd. The eneral Committee of the Union will eet in the morning under the chair- anship of Mr. W. Joynson-Hicks, .P., at the Municipal Offices, at the vitation of the Mayor and Corpora- on. An interesting programme has en arranged for the afternoon, and e tenth provincial dinner will be held the evening at the Hotel Mont Dore.

Cudham Hill Doomed?

There is a prospect, we hear, of the ngerous bend at Cudham Hill being moved by the local authorities. If , the ascent will lose some of its verity, and might even be impractic- le for hill-climbs, as the pull up past e top leading to the churchyard and rch entrance to quaint old Cudham urch is short. At the same time, we nsider it questionable if the parish ill go to the expense of the improve- ent, as the road is practically disused ordinary traffic.

Motor Cyclist and Lawn Tennis Champion.

In last week's *Tatler* a capital photograph appears of Mr. A. F. Wilding, present holder of the covered court tennis championship, mounted on a F.N. motor bicycle, on which he has made extensive tours both in England and on the continent.

The Suggested Sidecar.

The inventor of the sidecar attachment described in *The Motor Cycle* of April 22nd, page 311, under the title "A Novel Sidecar Attachment," informs us that the idea is fully protected. Anyone wishing to use it can be put into communication with the inventor if he addresses a letter "Novel Sidecar," c/o the Editor.

Rubber Studded Tyres.

It is not difficult to notice that rubber-studded tyres on motor cycles have quickly jumped into popularity. They undoubtedly minimise the risk of side-slip greatly. At present there are two patterns on the market, the Shamrock-Excelsior and the Goodrich. We have used both makes on our own machines for several hundred miles, and consider them excellent.

Imports of Motor Cycles.

The Board of Trade returns show a gradual falling off in the imports of foreign motor bicycles. 160 complete machines were imported last month, as against 241 in April, 1907. During the four months ended April 30th, 627 motor bicycles were imported, as against 744 last year, and 805 in 1906. The values, together with parts, were £23,283 (1908), £32,208 (1907), and £32,561 in 1906.

Exports of British Machines.

British exports again show an improvement. Eighty-seven complete machines were despatched from this country during April, fifty-one last year, and sixty-one in April, 1906. From January 1st to April 30th, 271 machines were exported this year, 224 in the corresponding period of 1907, and 255 in 1906. Together with parts, the total values were £17,787, £18,297, and £16,980 respectively. £3,024 represents the value of foreign motor cycles and parts re-exported from England during the first four months of the present year.

A Long Day's Ride.

Newcastle-on-Tyne to Wokingham (Berks) is a matter of 300 odd miles. This distance was accomplished in 13¾ hours during Easter by a rider of a 1908 Triumph, who wished to visit his friends for the holidays. One hour was occupied for luncheon, which reduces the time to 12¾ hours, or an average of about 23½ miles an hour. We see no reason why such a performance should not be made public provided due care was displayed in passing through towns and villages, and we understand that time was made up on deserted stretches where no inconvenience or risk of accident to other road users was likely to occur.

Loss of a Motor Coat.

A case not without interest to motor cyclists was heard at Newark recently. Mrs. Waterfall, of Whitwell, sued George Baines, Ossington Coffee Palace, Newark, for £5, the value of a motor coat alleged to have been taken from a car in the Ossington garage whilst plaintiff and her husband were having tea in the house. After tea Mr. Waterfall returned to the car to get some paraffin oil for his tail lamp. The coat was then noticed in the car, but on returning again a short time afterwards the coat was missed. The judge held that after having his tea and going to the car for his lamp and oil Mr. Waterfall took possession of his car, and that the coat was lost after taking such possession. Judgment was, therefore, for defendant with costs.

Motor Cycling for Ladies.

With regard to the article "Motor Cycling for Ladies," published last week, Miss Muriel Hind rode from Coventry to Wareham, Dorset, on Saturday last *viâ* Oxford, Reading, and Winchester. The distance is approximately 160 miles, and this ride was accomplished with ease and comfort in about eight hours. The advantages of the free engine clutch fitted to the 5 h.p. Rex were exemplified at various awkward corners, particularly in Winchester, where there is a nasty turning to negotiate, which might present difficulties for a clutchless machine handled by a lady. Miss Hind's longest ride on this machine totals about 200 miles in the day.

Leeds M.C.C. Hill-climb on Beulah Hill. Some of the competitors at the start. The winner, Mr. A. B. Hughes (4 h.p. N.S.U.), is second from the left.

The Second Motor Cycle Race at Brooklands.

FOR the second time the motor cycle race at Brooklands was one of the most appreciated events of all those which took place at the meeting on Saturday last. In a motor cycle race there is something irresistibly attractive, which keenly interests the public. To our mind, the riders appeared to be travelling faster than many of the cars, and the number of entrants (thirty-one), all of whom started, rendered the race particularly exciting. On the race card the event was down as follows: 3.45 p.m. The Motor Cycle Handicap Plate of 25 sovs. (The entrant of the winner to receive 15 sovs., the entrant of the second 7 sovs., and the entrant of the third 3 sovs.) For motor bicycles of which the engines, if twin-cylinder, do not exceed 85 mm. by 95 mm. for each cylinder.

The engines of the machines entered varied from the 7 h.p. twin Peugeots of A. G. Forster (7 h.p. N.L.G.-Peugeot) and E. Kickham (7 h.p. Leader-Peugeot, 82 by 90) to the tiny single-cylinder 70 by 70 1¾ h.p. K.D. entered by A. C. Wright. Among the well-known riders we may mention W. Genn (7-8 h.p. Minerva, 80 by 95), F. Toman (4½ h.p. Laurin and Klement, 75 by 85)—the other L. and K. was the identical machine which competed so successfully in the International Cup Race in 1905, 7 h.p., 80 by 100—W. G. McMinnies (3½ h.p. Triumph), M. Geiger (6 h.p. N.S.U.), W. H. Wells, A. Sproston, and A. G. Reynolds (5 h.p. Vindecs, 75 by 76), T. H. Tessier (6 h.p. Bat, 76 by 95), R. M. Brice (3½ h.p. Brown, 82 by 90), G. Lee Evans (3½ h.p. Rex, 82 by 90), G. Aldington (3½ h.p. Kerry, 68 by 72), and A. C. Wright (1¾ h.p. K.D.), whom we were pleased to see again on a motor bicycle.

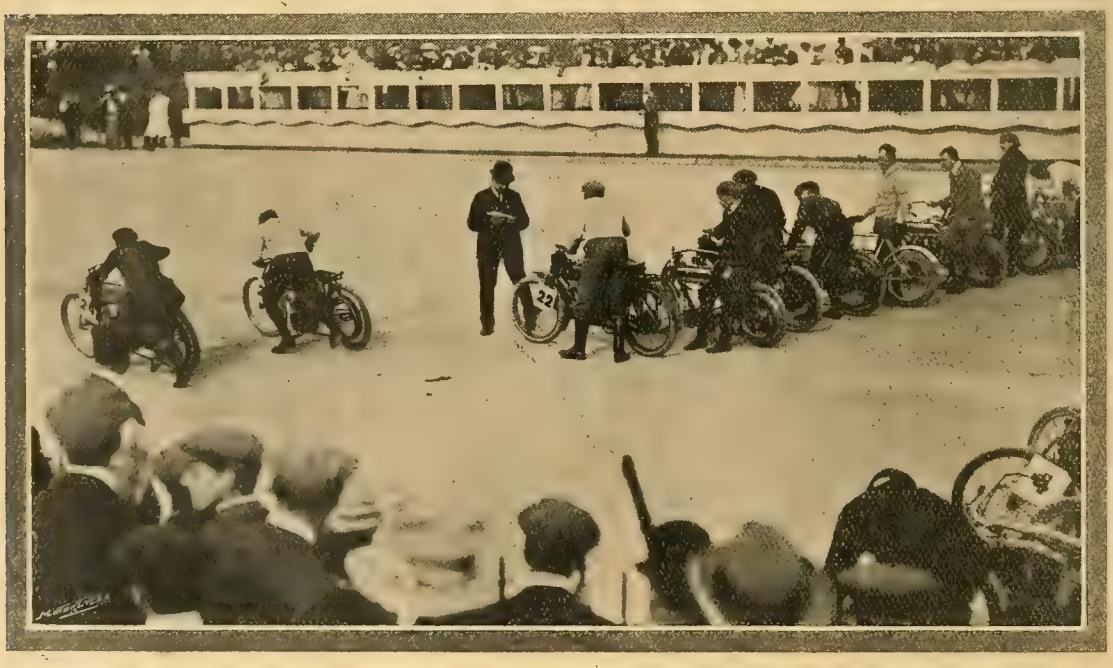
The thirty-one machines lined up near the timing box made an imposing spectacle, and nearly all made a good start. The length of the race was about five and a half miles, the machines passing the fork once and then entering the straight. Once started, the race was hard to follow, but at the completion of the circuit it was interesting to see the riders streaming along the course under the bridge, the scratch men rapidly overhauling the lower-powered machines.

In the paddock at Brooklands. Preparing for the Motor Cycle Plate. Out of an entry of thirty-one competitors every one came to the post.

Talking with one of the competitors after the race we were told that the wind was most trying during tha part of the race where it blew in the teeth of the com petitors, and also that there is no necessity to tak the banking.

Handicap Results.

The following is the result of the handicap: (1 H. Shanks (2¾ h.p. Chater-Lea), 2m. 45s. start, tim 7m. 48s.; (2) H. G. Partridge (6 h.p. N.S.U.), 1m 45s. start, time 7m. 51s.; (3) W. H. Bashall (3½ h.p Triumph), 1m. 40s. start, time 7m. 56⅕s. The fastes speed attained was fifty-eight miles an hour. Th



Start of the Moto Cycle Handica Plate of 25 sovs. o Brooklands Trac Saturday last, Ma 9th. Great intere was displayed i this event, an there was a exciting finish b tween second (M H. G. Partridg 6 h.p. N.S.U.) an third (Mr. W. H Bashall, 3½ h. Triumph). Les than a whe separated thes two riders.

The Second Motor Cycle Race at Brooklands.—

2¾ h.p. Chater-Lea was a particularly neat racing machine, being well designed, light, and efficient, while the N.S.U. ridden by Partridge was the identical roadster machine he rode in the last quarterly trials.

Brooklands Second Motor Cycle Race. Mr. H. Shanks, Jun. (2¾ Chater Lea, 75 x 75 mm.), winner of the handicap with a start of 2 mins. 45 secs. Time, 7 mins. 48 secs.

The following came next in order (after each machine the amount of handicap is given): M. Geiger (6 h.p. N.S.U.), 1m. 25s.; H. A. Cooper (3½ h.p. Triumph), 2m. 35s.; F. G. Andræa (5 h.p. Rex). 1m. 45s.; T. H. Tessier (6 h.p. Bat), 1m. 35s.; A. Sproston (5 h.p. Vindec), 1m. 30s.; G. Lee Evans (3½ h.p. Rex), 1m. 50s.; W. G. McMinnies (3½ h.p. Triumph), 1m. 25s.; F. Toman (5½ h.p. Laurin and Klement), 40s.; R. O. Clark (4½ h.p. F.N., four cylinders), 1m. 50s.; W. Pershke (4 h.p. Diamond), 2m. 10s.; R. Mundy (3½ h.p. Triumph), 2m. 35s.; R. M. Brice (3½ h.p. Brown), 1m. 50s.; G. L. Fletcher (2 h.p. Moto-Rêve), 3m. 20s.; W. E. Cook (7 h.p. N.L.G.), scratch; E. Kickham (7 h.p. Leader), 20s.; B. C. Lamb (4½ h.p. F. N., four cylinders), 1m. 50s.; J. Merfait (7 h.p. Laurin and Klement), scratch; W. Genn (7-8 h.p. Minerva), 20s.; and A. G. Reynolds (5 h.p. Vindec), 1m. 35s.

Among the unfortunates were Wells, who punctured; A. Mayer (7 h.p. Buchet), whose belt came off; A. C. Wright, whose number plate fell off, caught in his front wheel, and threw him; and H. P. Beasley (5 h.p. Rex), trouble with crankshaft bearing.

The weather was gloriously fine, and a good number of spectators were present. The following officials assisted at the motor cycle race: Mr. A. V. Ebblewhite, circuit counter and starter; Mr. F. Straight, handicapper; while among the members of the A.C.U. committee there were to be seen Messrs. H. P. E. Harding, H. G. Cove, and E. M. P. Boileau.

M.C.C. HILL-CLIMB AT SHARPENHOE.

The result of the handicap for motor cycles at the M.C.C. Sharpenhoe hill-climb on May 2nd is as follows:

CLASS I.—For single-cylinder motor bicycles with engines of any capacity.

Position.	Rider and machine.	Points.
1.	R. M. Brice (3½ h.p. Brown)	75.0
2.	W. A. Sale (3½ h.p. Rex)	76.2
3.	C. C. Cooke (3½ h.p. Phœnix)	82.5
4.	J. P. Le Grand (2½ h.p. Matchless-Jap)...	86.5
5.	C. Gibbons (3½ h.p. Deacon-Minerva) ...	91.9
6.	W. A. Jacobs (3½ h.p. Rex)	94.7
7.	J. Stuart White (1¼ h.p. Motosacoche)	97.8
8.	Percy H. Trotman (3½ h.p. Triumph) ...	110.1

CLASS II.—Twin-cylinder motor bicycles with engines of any capacity.

1.	S. G. Frost (4½ h.p. Minerva)	90.4
2.	Owen L. Summers (5 h.p. Vindec Special)	94.2
3.	W. H. Wells (5 h.p. Vindec Special) ...	101.1
4.	Edward Pond (5 h.p. Vindec Special) ...	101.7
5.	C. H. Barfield (5 h.p. Vindec Special) ...	102.0
6.	S. H. Fry (5 h.p. Vindec Special) ...	105.4
7.	Vivian Olsson (5 h.p. Vindec Special) ...	105.9
8.	A. S. Phillips (5 h.p. Vindec Special) ...	106.8
9.	Miss Muriel Hind (5 h.p. Rex)	107.1
10.	Frank White (5 h.p. Rex)	114.7
11.	Chas. J. Seed (5 h.p. Vindec Special) ...	114.9
12.	W. A. Sale (5 h.p. Vindec Special) ...	115.6
13.	A. G. Reynolds (5 h.p. Vindec Special)...	123.7
14.	T. F. Fox (5 h.p. Rex)	129.9
15.	Will Pershke (3½ h.p. Diamond)	162.5

CLASS III.—Passenger motor cycles.

1.	A. F. Ilsley (5-6 h.p. Phœnix Trimo) ...	115.3
2.	E. W. Brewerton (10 h.p. Lagonda tricar)	125.5

The times were given in *The Motor Cycle* of May 6th (page 362). The formula used was $\frac{T \times C}{W}$.

It was stated in our report of the M.C.C. Hill-climb last week that W. A. Sale rode a Rex in the multi-cylinder class, whereas he was mounted on a 5 h.p. Vindec Special in Class II. and a 3½ h.p. Rex in Class I. He is second on formula in Class I.

Lancashire M.C.C. Hill-climb on Bunker's Brow. J. L. Macalpine (5½ h.p. twin N.S.U.) travelling "all out" (see next page).

CLUB NEWS.

Mid-Staffordshire A.C.

A members' hill-climbing competition for motor cycles will take place at Sandon Bank, to-day (Wednesday) at 6.30 p.m.

Richmond and District M.C.C.

On the 23rd inst., there will be a week-end run to Petworth, staying the night at the Swan Hotel. On the following day members will proceed to Duncton Hill.

A Motor Cycle Club for Wakefield.

On Thursday last a number of local motor cyclists met at the George Hotel, Kirkgate, and formed a club. Another meeting will be held to-morrow (Thursday) at eight o'clock, and any riders in the district will be welcome.

Crewe and District M.C.

This club held its opening run to Chester on May 2nd, which was a great success. Members are reminded that the 100 miles non-stop trial for the Hutton Cup is to be run on May 23rd, and are requested to send in their entries.

The Liverpool M.C.

The above club's hill-climb will be held on Saturday next at 4.30 p.m. sharp. The hill is about threequarters of a mile long, and the severest gradient about 1 in 7. Entries are invited for the M.C.C. inter-club team trial for *The Motor Cycle* challenge cup.

Walthamstow M.C.

At a committee meeting held at headquarters on Thursday last, it was decided to support the Woodford meet on June 20th. The following new members have recently been elected: Messrs. J. Meads, A. Chapman, F. Lewis, Stott, Kingaby, F. Hayns, O. C. Godfrey, and W. S. Low.

Great Yarmouth and District M.C.C.

The above club's penalty run is to be held to-morrow, the 14th inst. The course is a circular one amounting to seventy-six miles, the starting point being Haddiscoe. The rules are based on those for the M.C.C. team competition for *The Motor Cycle* cup, for which this run will be an eliminating trial. A good entry has been secured.

Sunderland and District M.C.C.

The annual hill climb will take place at Tunstall Hope, on Saturday next, the 16th inst.; commence at 2.30 p.m. There will be three classes, and results will be decided on formulæ. No pedalling will be permitted. Entries should be sent to Mr. S. Wilson, 2, Ash Place, Newcastle Road, Sunderland.

Cardiff M.C.

On Saturday next, the 16th inst., a hill-climbing competition will be held on Rhubina Hill, near Whitchurch, at 3.30 p.m. sharp. The entrance fee is 2s. 6d. for cars and 1s. for motor cycles, and entry forms must be in the secretary's hands by to-morrow morning (Thursday). His address is H. B. Jotham, Grasscroft, Whitchurch, Glamorgan.

Lancashire M.C.C.

The hill-climbing competition for the Harold Eccles Challenge Cup was held on the 7th inst. (see photograph, page 387). The results on time were as follows:

CLASS B.—SINGLE CYLINDERS.

Rider and machine.	Time.
R. Jamieson (3½ h.p. Triumph, 84×86 mm.)	35s.
H. Garstang (3½ h.p. Triumph, 84×86 mm.)	35⅖s.
A. Weldon (3½ h.p. Triumph, 84×86 mm.)	37s.

CLASS C.—TWIN CYLINDERS.

J. S. Turner (6 h.p. N.S.U., 75×90 mm.)	33s.
Hy. Haworth (5 h.p. Vindec, 75×76 mm.)	35⅖s.
J. L. Macalpine (5½ h.p. N.S.U., 75×75 mm.)	39⅖s.

CLASS D.—PASSENGER MOTOR CYCLES.

J. W. Higson (3½ h.p. Triumph with sidecar, 82×86 mm.)	51s.
Hy. Haworth (5 h.p. Vindec with sidecar, 75×76 mm.)	61⅘s.
A. T. Monk (6 h.p. Raleighette, 75×80 mm.)	92s.

Motor Cycle Union of Ireland (Ulster Centre).

The first hill-climbing competition of the season under the auspices of this centre took place at Carnmoney, Co. Antrim, on Saturday last. Class A, confined to private owners, was won by W. Wilson (2¾ h.p. Minerva), in the nett time of 21⅗. The open class was won by A. Bullick (3½ h.p. Jap), in the nett time of 24⅕s. The length of climb was 730 yards.

Dublin and District M.C.C.

The following events are down for decision: May 23rd (Saturday week), members' hill-climb; May 30th, M.C.U.I. speed trials, Portmarnock.

Newcastle and District M.C.C.

A speed-judging competition was held on Saturday last between Ponteland and Belsay, over a course of five miles. The result was a win for R. L. Atkinson (3¾ h.p. N.S.U.), who was, however, 1m. 11s. too fast.

Shamrock M.C.C. (Belfast).

The first hill-climbing contest during 1908 under the auspices of this flourishing club was held at Gilnahirk, County Down, on the 2nd inst., and resulted in a win for M. J. Lindsay (3½ h.p. Triumph) in the nett time of 59⅘s.

Middlesbrough and District M.C.C.

The following are the results of a hill-climb held by the above club on Yearby Bank, near Redcar, on April 21st:

1.	R. W. Day (3 h.p. N.S.U.)	121 marks
2.	W. E. Grange (3½ h.p. Triumph)	108 ,,
3.	H. Rudland (3½ h.p. Kerry)	105 ,,

Leeds M.C.C. Hill-climb.

The above event, postponed from the 25th ult., was held on Saturday last at Beulah Hill; the entries totalled 30, and the A.C.U. formula was used. Competitors were divided into two classes—riders of single and riders of twin-cylinder machines—the winner of each class to compete in the final for the Kirk trophy and a gold medal. The results were: 1, A. B. Hughes (4 h.p. twin N.S.U.); 2, Eric S. Myers (3½ h.p. single Triumph). Other results will be published as soon as they are made known (see photograph, page 385).

The Kelly cup will be competed for next Saturday.

Brighton and District M.C.C.

A petrol consumption trial was held on the 2nd inst. over a five and a half miles course, between Albourne and Henfield, and this had to be covered twice. Competitors' tanks were completely filled at the start and refilled at finish, the amount consumed being carefully calculated. The event was run in two classes, and resulted as follows:

CLASS I.—Twin-cylinder machine, any capacity.

		Petrol.	Miles to gallon.
1.	G. W. Gardner (6 h.p. Matchless-Jap)	25 ozs.	= 83.8
2.	T. Rollon (3½ h.p. F.N., four-cylinder)	24 ozs.	= 73.3
3.	C. E. Sambrook (5½ h.p. N.S.U.)	*33 ozs.	= 70.9
4.	H. Saunders (6 h.p. Bat-Jap)	35 ozs.	= 70.4
5.	R. W. Cartwright (3½-4 h.p. G.B.)	36 ozs.	= 67.7
6.	H. Clifton (5 h.p. Roc)	95 ozs.	= 18.5

*Misdirected; went 3⅝ miles too far.

CLASS II.—Single-cylinder machines, any capacity.

		Petrol.	Miles to gallon.
1.	A. Zapp (2¾ h.p. Rex)	13 ozs.	= 135.3
2.	R. Turpin (3½ h.p. Peugeot)	13½ ozs.	= 130.3
3.	E. L. Waters (3 h.p. Rover)	15½ ozs.	= 113.5
4.	H. J. Gotto (3 h.p. N.S.U.)	16½ ozs.	= 106.6
5.	J. D. Box (3½ h.p. Triumph)	21 ozs.	= 83.3

Messrs. E. G. Waters, Saunders, Cartwright, J. H. Best, and Box acted as officials and petrol checkers, and everything was carried out in an expeditious and satisfactory manner.

Ayr and District M.C.C.

This club held its first hill-climbing competition on the 4th inst. at Whitehill Brae. There were twenty entries. The results, based on the A.C.U. formula, were as follows:

Rider and machine.	F.M.
J. McClure (3½ h.p. Triumph)	55.4
M. Brown (1¾ h.p. F.N.)	58.1
J. Robertson (3½ h.p. Minerva)	58.3
D. Milligan (4 h.p. Werner)	59.9
J. Johnstone (3 h.p. Fafnir)	71.8
G. Cocker (5 h.p. Rex)	76.0
J. Grier (2 h.p. De Dion)	79.7
T. Gray (3 h.p. Quadrant)	80.3
A. Sommerville (4 h.p. Antoine)	95.3
Q. Clark (5 h.p. Rex)	98.8

Four prizes were offered, one for the machine making fastest time, which was also won by Mr. McClure, whose time for the ascent was 41s.

Club News.—

Stockport and District M.C.C.

At the first general meeting of this club at the Mersey Hotel, it was decided that a run should take place every Thursday evening, start 6.30, and the destination should be decided by the members present.

Cambridge University M.C.C.

Saturday next is the date fixed for the hill-climbing competition for the Moring Cup and for the Rolls Cup, and on the 23rd inst. a reliability trial will be held for a cup presented by the Hon. C. S. Rolls. May 30th is the date fixed for the Oxford *v.* Cambridge match.

Western District M.C.

The cup kindly given by the president will be awarded to the winner of a reliability trial to be held on June 14th, the course being to Salisbury and back. There will be a run on May 28th, in conjunction with the Eastern District M.C., to Reigate in the morning, after which the members will accept the kind invitation of Leverton Harris, Esq., M.P., to tea.

Hull and East Riding A.C.C.

The following fixtures have been arranged:

Saturday, May 23rd.—Inter-club meet with Lincs M.C.C.

Saturday, June 6th.—Hill-climbing competition.

Friday, Saturday, and Sunday, June 12th, 13th, and 14th.—Proposed long-distance trial to London and return; start 10 p.m. Friday.

Saturday, June 20th.—Inter-club meet with Lincs M.C.C. at Brigg for Twigmoor Gull Ponds; tea, Angel Hotel, 6 p.m.

Herts County A.C.

We are advised that the A.C.U. Quarterly Trials having been advertised for Saturday, April 25th, and the date changed rather late, had something to do with the lack of entries for the above club's open motor cycle hill-climbing competition. At a meeting of the General Committee held recently, it was decided to call an extraordinary general meeting at an early date for the purpose of submitting to the members and, if thought fit, of passing a resolution to change the rules of the club so as to admit motor cyclists at half a guinea instead of at a guinea as at present.

Cambridgeshire M.C.C.

The following are the fixtures for May and June:

Saturday, May 16th.—Meet at headquarters at 2.45 for the Swan, Linton.

Sunday, May 17th.—Meet at Westminster College at 10 a.m. for the Cross Keys, St. Neot's.

Thursday, May 21st.—Meet at headquarters at 2.30 for Croydon Hill, Cambs. The hill-climb with the University M.C.C. will start at 3.30 sharp. Tea at Hardwicke Arms after competition.

Sunday, May 24th.—Meet at Hills Road Bridge at 2.45 for Newmarket *viâ* Gogs. Tea at the Club, Ely.

Thursday, May 28th.—Meet at headquarters at 2.45 for the Lion, St. Ives.

Sunday, May 31st.—Meet at Victoria Bridge at 10 a.m. for lunch at the White Hart, Wisbech.

Thursday, June 4th.—Meet at headquarters at 2.45 for Ivel, Biggleswade.

Bradford M.C.C.

At the last committee meeting of the above club six new members were elected, and the Secretary stated that the membership was increasing steadily. After much discussion, it was unanimously agreed that there should be formed in connection with the B.M.C.C. an associates' scheme in order that the unattached riders of the North should have the opportunity given to them of joining the Auto Cycle Union at a nominal fee of 5s. The subscription will give to members all the advantages of the club's affiliation to the Auto Cycle Union and R.A.C., but will not carry any right to enter into any of the club events or competitions. The committee feel that this is a step in the right direction, and are desirous that all motor cyclists, who are not already members of affiliated clubs in the North, will become members of the associates' scheme of the Bradford M.C.C., and thereby derive the unmistakable advantages which affiliation to the A.C.U. offers. All interested motor cyclists of the North are heartily invited to apply for an associates' nomination form, enclosing fee 5s., to the hon. sec., Bernard Read, Imperial Hotel, Manchester Road, Bradford.

Motor Cycling Club.

The following new members were recently elected: Messrs. E. A. Anthony, H. A. Bate, H. M. Benkley, F. Biggs, G. Brough, R. O. Clark, H. Collins, B C. Cumberland, V. H. Denchar, A. G. Fenn, H. Fuller, G. W. Mann, R. G. March, H. Myer, W. T. Pershke, F. H. Libley, F. White, and Capt. Sir R. K. Arbuthnot, Bart., R.N.

A Motor Cycle Club for Halifax.

At a meeting held on the 28th ult., at the Old Cock Hotel, it was decided to form a motor cycle club for Halifax and district. As there are a large number of riders in Halifax and neighbourhood, a strong club ought to be formed. The next meeting will be held at the above hotel to-morrow (Thursday), at 8 p.m., when any private owners of motor cycles wishing to join will be cordially welcomed.

Essex M.C.

The open hill-climb at Lippett's Hill, High Beech, which will be held next Saturday, should be a most successful affair. There will be no handicap and no formula, but a number of classes have been instituted so as to place the machines as nearly as possible on the same level. The idea is a good one, and owes its origin to that enthusiastic and energetic member of the club, Mr. A. G. Reynolds. Each machine and rider in each class must together scale a certain amount, so that if the rider is a lightweight he must carry sufficient ballast on his machine to make up for the deficiency, which will tend to place everyone on the same basis.

The classes are: *(a)* Single-cylinder motor bicycles. Class 1, cylinders not exceeding 82 mm. bore; Class 2, cylinders not exceeding 85 mm. bore; and Class 3, cylinders not exceeding 90 mm. bore. Machine and rider in each class to weigh not less than a total of 320 lbs.

(b.) Twin-cylinder motor bicycles. Class 1, each cylinder not exceeding 76 mm. bore. Class 2, each cylinder not exceeding 80 mm. bore. Class 3, each cylinder not exceeding 85 mm. bore. Machine and rider in each class to weigh not less than a total of 340 lbs.

(c.) Lightweight motor bicycles. Class 1, standard lightweight with engine not exceeding 2½ h.p.; machine and rider not to weigh less than 250 lbs.

(d.) Passenger motor cycles (sidecars and forecars). Handicap, time allowance. No. h.p. or weight limit.

(e.) Passenger motor cycles (tricars, quadcars, fitted with variable gear). Handicap, time allowance.

Slow test. All machines eligible in *(a)* *(b)*, Classes 1, 2, and 3.

York County M.C.C.

The above club held its first competition—a consumption trial—on the 2nd inst., over a course of exactly twenty-five miles, from Wetherby to Boroughbridge and back. The results were worked out on the following formula: Weight of rider in lbs. + cubical capacity in centimetres ÷ the amount of petrol consumed in ounces. It is interesting to note that three twin-cylinder machines were competing, and on the formula occupied first, seventh, and fourteenth positions—a fact which should prove that the formula adopted did not give the twin-cylinder machines any advantage. On formula, the order of merit is:

Name.	Make of machine.	Fuel consumed. Ounces.	Figure of merit.	Miles per gallon.
C. Potter	(7-9 h.p. Bat twin)	50	23.3	80
H. Noble	(3½ h.p. Triumph)	29	21.24	137
J. Chadwick, jun.	(3½ h.p. Triumph)	29	20.96	137
C. S. Allan	(3½ h.p. Triumph)	30.1	20.19	132
H. H. Charge	(3½ h.p. Triumph)	33	19.24	121
C. H. Benn	(3 h.p. Triumph)	27.75	18.63	146
E. H. Noney	(4½ h.p. Minerva twin)	40	18.55	100
R. Durham	(3½ h.p. Triumph)	31.75	18.45	125
E. Slater, jun.	(3½ h.p. Triumph)	34.6	18.43	115
H. Wilkinson	(3½ h.p. Triumph)	36	17.35	111
C. Wilson	(3½ h.p. Triumph)	36.5	17.16	109
R. Wilkinson	(3 h.p. Triumph)	31.25	16.66	128
W. F. Savory	(3½ h.p. Triumph)	39	16.51	102
H. R. Croisdale	(4 h.p. N.S.U. twin)	56	11.96	71
C. Graham	(3 h.p. Triumph)	Non-starter.		

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Low Petrol Consumption.

[3300.]—In reply to "Subscriber's" letter, the machine which ran thirty miles on a pint of petrol is fitted with a 2¼ h.p. engine, but I cannot say exact cylinder dimensions. Gear 6 to 1. Rider's weight 9 stones. E 123.

Unattached Riders.

[3301.]—I am glad to see you are considering the unattached rider. There are A.C.U. "advantages" numbered 1 to 15. All I have any use for is No. 2 and No. 12, and, as I take *The Motor Cycle*, I can well do without No. 12.

No. 2 (Possible legal assistance).—If my case is a very unusual one, and one likely to bring credit upon the A.C.U. if they take it up, I think 5s. per annum quite enough for that. It is not an insurance. REUBEN G. NORMAN.

[3302.]—i ope yu will forgive me for ritin to yu, but i am a demon for wantin to no things, and wen i sees this in ure paper—"The very existence of the A.C.U. depends upon Funds"—i goes to our captan and says, ure smart, can you tell us wat it means, an he says, yu've got to reed atween the lines, so i gets a big glas an lucks carefully, an i can't see nothin, so i says to meself, the Editor of our paper is the man to put me rite, an wat i wants to no is, supposin our club ad fillyated in january we shud all of us ave ad the club paper sent to us every weak, wich wood av cost the A.C.U. 2s. 2d. for postage. Our filly ashun fee is only 2s. ahead, ow do they get the funds that they want. i ope u wont laff to much at me for ritin to yu, but i think the A.C.U. mite send us the 2d. per member insted of the paper, and fillyate us for nothin. The A.C.U. wud av a full membership and our club wud av mor money. EF 5.

[3303.]—Your article in *The Motor Cycle* of April 29th admirably voices the views of unattached motor cyclists. This class of cyclist rides simply for his pleasure, and is not likely to be coerced into joining a provincial club merely to secure the "advantages of affiliation with the A.C.U."

Really, this cock-a-hoop attitude assumed by the A.C.U. in the matter of the unattached motor cyclist strikes me, for one, as being a trifle ridiculous, especially when I remember that the A.C.U. is not in the position to offer anything like the substantial advantages secured by the modest subscription of 5s. to the C.T.C. This old and powerful organisation is, moreover, indispensable to all cyclists who tour on the Continent. No, leave the A.C.U. and its local satellites to cultivate the "sport" of hill-climbing; for the rest, the C.T.C. should serve well enough.

HARRY A. BULLOCK.

[3304.]—In your issue of April 29th the editorial dealing with the unattached rider conveys to me the impression that hitherto the Cyclists' Touring Club has not catered for the motor cyclist. Please allow me to correct this impression.

Will you also kindly permit me, through your correspondence columns, to correct another impression which seems to be widespread, *i.e.*, that the C.T.C. does not welcome motor cyclists. This impression is quite wrong. The C.T.C. does welcome the motor cyclist, and to the non-racing man offers more advantages than any other club. A nominal entrance fee (1s.) and subscription (5s.) includes a monthly gazette, a very complete hotel guide, comprising hotels to suit all purses, and legal assistance when necessary.

The motor cycle committee is at all times ready to consider any suggestions for the furtherance of motor cycling interests by the club, and should a sufficient number of motor cyclists evince a desire for such a step, no doubt a motor cycle section could be formed within the club on the lines of our distri associations, affording motor cycling members opportuniti for meetings, discussions, tours, etc., etc.

In the C.T.C. the motor cyclist and the push cyclist sha alike the advantages of a vast organisation, which has sto the test of time, and hope by hearty co-operation to strengthe the position of both upon the road.

B. P. S. ROOKE,
Chairman Motor Cycle Committee C.T.C.

Gudgeon Pin Accidents.

[3305.]—The accompanying drawings will, I think, h to explain why makers apparently "waste iron" at t bottom of the cylinders (see letter 3263). It will be seen th the angles formed by the pist rod in fig. 2 are far smal than those in fig. 1, and con quently an engine designed the principles of fig. 2 w be more efficient, since diminishes the angle at whi the piston rod works. Anotl expedient to reduce this an was employed by Richard Cie. and in the Ailsa Cr engine, viz., the offset cra shaft.

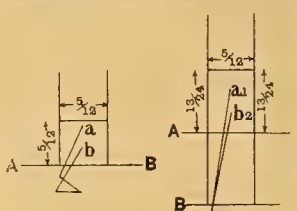


FIG. 1. FIG. 2.
A. Bottom of stroke.
B. Bottom of cylinder.
Piston rod, ½in. Piston rod, 1 in 5/8. Cylinder 5/12 · 5/12in. Cylinder 5/12 · 1 3/4in.

A glance at any of t Atlantic or big six-coup loco's on any railway will b out the principle; for a 30in. stroke a connecting rod of 14 is sometimes employed.

If lengthening the cylinder is merely waste of iron, why firms like the Triumph, Minerva, and J.A.P. (especially t 3½ 85 by 76 of the last-named firm) employ engines this design?

Anent the gudgeon pin story, I rather agree with M Hayton that there was a slight misstatement in it as origina told. I see "Ixion" is very cautious in his latest yarn. I I trust that criticism will not cause him to refrain from telli any more that may come his way.

JOHN F. H. TEMPLER

Lightweight Experiences.

[3306.]—Having noticed many articles in your valua paper on lightweight machines, it may not be out of place relate my experience on one of these machines.

I purchased at the last Stanley Show a Douglas 2¾ h lightweight twin opposed engine, with outside flywheel a Bosch magneto.

This little machine has not given me the slightest troub and I have had many pleasant trips, as I have ridden it so 1,700 miles.

Some riders I notice are troubled with head wind on ligh weights, but this has never troubled me the slightest, and t machine will do the Redhill on the London-Exeter road wi the greatest ease.

It was only last week that a friend and myself rode Birdlip Hill to test our machines, and to our surprise t little machine, with a gear of 5½ to 1, went up Birdlip wit out any assistance whatever.

This I consider a good performance, and the machine very fast on the level—thirty miles per hour can be obtaine

I feel sure this machine will knock out a lot of the heav weights for comfort, speed, and reliability.

J. KIDDELL.

The M.C.C. Members' Hill-climb.

3307.]—In your issue of May 6th (page 362), referring to
M.C.C. members' hill-climb at Sharpenhoe Hill, you com-
e the time of the cars and bicycles up the hill. This is
quite fair, as the motor bicycles had a moving start,
ereas the cars started from a standing start. I merely
ntion this for the sake of accuracy, as no one has a higher
nion than I have of a motor bicycle and its wonderful
vantages and capabilities. At the same time the motor car
its uses, and no good purpose is served by making com-
isons which are not correct. S. F. EDGE.

Below is the paragraph referred to on page 362:

"After the course was clear again, the car class was run off, Mr. S. F. Edge (40 h.p. Napier) making the fastest time, namely, 1m. $2\frac{4}{5}$s. We mention this fact to show where the 40 h.p. six-cylinder would have been had it competed with the motor cycles. It would have been beaten by twelve of the twin-cylinder machines and four of the single-cylinder motor bicycles. Motor cyclists, therefore, still hold the field as far as hill-climbing is concerned."

e should be the last to wish to publish anything disad-
vantageous to such an old and experienced ex-motor cyclist
s Mr. Edge, and although we do not admit that the
aragraph is incorrect, we inadvertently omitted to state
hat the bicycles were given a flying start. As far as the
astest times are concerned, there were $13\frac{3}{5}$ seconds differ-
nce between the fastest car and the fastest bicycle. Making
ull allowance for the flying start, the bicycle was clearly
he faster.—ED.]

Belt v. Chain and Two Speed Gears.

3308.]—The interesting controversy which is at present
ceeding on this subject in your journal between Messrs.
H. Davies, A. Wharton Metcalfe, and others is rather
using to an old stager like myself.

Four years ago last August I was preaching the doctrine of
speeds for motor bicycles to Mr. Harry Smith, of the
ver Co., Ltd., in his office. This, I think, was before
Davies had ever acknowledged the necessity of any
uction of gear on hills, and while Mr. Fawcett was
ting scornful letters on the effeminacy of multiple gears
your valuable paper.

The question of two speeds has, I am afraid, nothing to do
h belt or chain transmission as such. The question is
iency as compared with increased weight and friction.
Davies says that "the belt has altogether ousted the
in"; and why? Merely because belt drive is more
able for lightly built machines and imperfectly skilled
ers, on the one hand, and, on the other, it is more cheaply
ed by the manufacturer. Mr. Wharton Metcalfe plumps
the chain. He says "its efficiency as a transmitter and
reliability place the chain far ahead of the belt for touring
winter riding."

have for the past two winters driven a two-speeded
yclic-geared car with single chain transmission, because I
not get an efficient two-speeded bicycle for my work.
the distance driven (9,000 miles) I have worn out five
ins, and I have had six accidents through chains. The
happened two weeks ago, when the chain jumped the
sprocket, jammed, and twisted the main axle half a
olution. This would have caused a somewhat serious
dent on a bicycle. On the other hand, I drove for the
winters preceding a 3 h.p. single-geared belt-driven motor
cle a distance of 10,000 miles. I used in this time and
ance two Continental rubber belts and an adjustable
ey. I never had any trouble except that after soaking
mud for a day or two the belt-fasteners occasionally
ed through.

till, from these personal experiences, I do not say that
belt is superior to the chain.

What we professional users of motor cycles want is for the
ufacturer to listen to us, and not to the so-called
tsmen and trade riders. These persons are fair weather
, whose hearts would be broken if they got a night
in January with a drizzle of sleet falling, or an urgent
sage about 2 a.m. in October with a thick white fog
ut, to ride five miles, partly up one in eight, and round
d corners, on a surface of new butter and cart ruts.
know what we want, and some day the trade will give
s, in spite of Mr. T. Barter (letter 3221, *The Motor Cycle*, April 1st—appropriate date). "Variable gears," he says, "are not needed, as they add to complication." How often was this written three or four years ago, and yet a number of so-called variable gears have been coming into the market week by week ever since. This gentleman is a designer. I should like to modify his designs and also his views by a course of practical night riding over country byroads.

I am a medical practitioner, not an engineer; a user, and not a builder. I know what I want, and do not need to be told. I want a machine reasonably light, but not unnecessarily so, with pedals, a fairly high direct drive on top, and a low emergency gear which must be efficient. The machine must be as good on top as any single-geared machine of the same horse-power and weight. There are thousands of men in this country who want this, and we look to the motor engineers of England to produce it.

The two or more speeded gears at present on the market have all their disadvantages. The majority are very heavy, to such an extent that for the same h.p. they are only two-thirds as efficient as their single-speeded brothers. A number are fitted on the engine-shaft—a bad place for gearing—and, further, require an adjustable pulley to be varied according

H. G. Partridge on a twin N.S.U. riding through the floods on the road to Aylesbury in the last Quarterly Trials. This rider made a non-stop run and has been awarded a certificate.

to the weather and condition of the roads. Of those in the back hub, the Phœnix has that drawback (to my mind), a dog clutch, and another (the Roc) does not allow of the use of pedals—an absolute necessity, in case of breakdown, for a medical man.

These back hub gears one hears on all sides have a habit of not engaging when required and of engaging when not required, and of disengaging when not expected. Perhaps some users could tell your interested readers, self included, if this is so or not. There are two of us in this neighbourhood who have had a go at every form of speed gear that has come anywhere within reach, and have been for three years, and still are, riding single-geared 1904 3 h.p. machines with adjustable pulleys, footrests, and non-skid tyres. When any maker brings out a useful 3-$3\frac{1}{2}$ h.p. single-cylinder with pulley on engine-shaft, with two speeds in hub, two ignitions (in case of breakdown, and for easy starting), weight about 170 lbs., preferably with pedals, in fact what I have been asking for for nearly four years, then we will give our old crocks a long rest. Further, we shall be able to preach the benefits of motor cycling without feeling that one is looked upon by one's friends as a tout for unpractical machine makers.

CHARLES S. PATTERSON, M.B., M.R.C.S.

Courtesy at the Shows.

[3309.]—I have followed with interest the correspondence in your columns headed "Courtesy at the Shows."

It is astonishing what apathy and arrogance the average Britisher will bear without public complaint, otherwise this question would surely have been raised before. I, with a number of others, have long since come to the conclusion that the smartly-tailored, silk-hatted gentlemen, with the big cigars, who are posted at the various stands, should be supplanted by practical, even if less ornamental, individuals, who could, and would, give the information wanted by enquirers.

A common instance of deplorable lack of courtesy occurred at the last motor car show in Liverpool, when I, a prospective buyer asking for information about a car in which I was interested, was haughtily referred by the "Chief" of the English agency for the car in question to one of his salesmen, whom I found just as arrogant as his employer. I left the stand in disgust, and the purchase was made elsewhere.

This mantle of apathy appears to have also descended upon the cycle trade, else I am unfortunate in my experiences, inasmuch as an order I sent on March 7th—for a "stock" article—to one of the largest and best known manufacturers of lamps in this country was forgotten (?). A reminder sent three weeks after failed to elicit a reply, and, being in actual need of the goods ordered, I, after a further lapse of time, made another application, this time addressed to "the manager." This communication was acknowledged five days after its receipt, and I was informed without comment that my order would be despatched next Thursday—that was two weeks ago—but the goods have not yet arrived.

I have always been of the opinion that courtesy and promptness were the elementary principles of business, but these qualities seem sadly lacking in a large proportion of the individuals and firms engaged in the cycle, motor cycle, and motor car industries of this country.

R. S. BROOKE-HITCHING.

Fixed v. Flexible Pattern Sidecars.

[3310.]—The appearance of Mr. Douglas Leechman's letter under the above heading in your issue of April 29th pleased me very much.

I am only a plain mechanic myself, whereas Mr. Leechman, although not a mechanic or a professor of mechanics, is a barrister trained in argument and legal controversy, and learned in the law, and, furthermore, is strongly interested financially in the sales of rigidly attached sidecars. Therefore, it is fortunate for me that the question of the sidecar cannot be disposed of by argument. As the maker of the sidecar on the good qualities of which Mr. Leechman addresses his remarks.

In the first place, Mr. Leechman is incorrect in comparing his rigid sidecar to a tricycle, because a tricycle is driven from the centre and steered from the centre, whereas the sidecar is driven and steered from one extreme side.

We all know how difficult it is for a bicyclist to steer a tricycle at the first attempt, but this is the fault of the rider and not the machine. With a rigidly attached sidecar the fault is fundamental with the machine, and no matter how practised the rider may become, the wrong principle cannot be removed, and is especially noticeable on high cambered roads, or when attempting to drive the combination with sidecar empty.

The other points Mr. Leechman refers to could also be disposed of very easily, because every claim made in favour of the particular sidecar he discusses has been established by actual test, and can be proved again whenever required.

As a reader of *The Motor Cycle*, Mr. Leechman must be aware of my anxiety to prove in competition with the rigid sidecar that all the exclusive claims made for the flexible sidecar can be substantiated in fact.

Bury St. Edmunds is an old town with some narrow streets, numerous sharp corners, and twisted road surface. It is on this ground the flexible sidecar has been perfected, and I can safely say that no rigidly attached sidecar, however expertly handled, could be driven over the same ground; many have tried, but none succeeded.

Seeing this is such a busy time of the year, I would suggest to Mr. Leechman that, instead of writing more letters, we arrange a meeting forthwith. In the meantime I would remind him that my advertised offer to pay £50 to the rider of any rigidly attached sidecar whose bicycle wheels are not out of alignment still holds good. W. MONTGOMERY.

Set Screw Experiences.

[3311.]—Talking of set-screw experiences, rather peculiar piece of luck came my way a few weeks ago. I ha no trouble with the engine of a second-hand machine I go some three months previously, using it daily, till one morn ing on attempting to start up I found the engine jamme hard and fast. A friend and I took it down and discovere a set-screw lodged between piston rod and baffle plate. Th was lucky enough, as it might have elected to jam when was travelling at twenty miles per hour, but it was nothin to what followed. We made sure that the remaining se screw was snugly *in situ*, and my friend was casually tur ing the starting handle round when, lo and behold! anothe set-screw appeared at the small opening between the baffl plates, carried up by a veritable (fly)wheel of fortune, t which, thanks to the thick cold oil in the crankcase, it ha

F. W. Applebee (twin Rex) riding through the water splash in the A.C.U. Quarterly Trials. He has been awarded a non-stop certificate. (*Photo by J. Van Hoqydonk.*)

providentially adhered. Criminally abandoned by a forn owner or a "repairer," it had remained harmless, but constant source of potential disaster during months of r ning. The space between flywheels and crankcase was ceptionally small, and when it appeared slowly before astonished eyes there was hardly a hair's breadth between returning wanderer and the aluminium. Three weeks la the engine again jammed on starting up, and we fu expected to find a few more set-screws knocking around, the two on duty were still in position. We therefore h to separate the two halves of the crankcase—a long job in case of this tricar—and on exploring we found a piece stout steel wire bent and battered, 3in. long, a smaller pi of ditto, and a chunk of baffle plate, evidently knocked by set-screw No. 2.

H. S. GASKELL.

SUMMARY OF CORRESPONDENCE.

Will "Engineer," Saltley, kindly note that no notice can taken of letters that do not bear the full name of sender well as address?

Zenith Motors, Ltd., write: "In the report of the A.C. Quarterly Trials we notice that Mr. F. W. Barnes's time Gore Hill is given as 1m. 19⅕s. behind the first machi We would like to point out that Mr. Barnes had to stop the middle of the hill owing to being blocked by a lan and pair of horses, and, without stopping his engine, started, and finished the hill in this time."

EXPERIENCES WANTED.

"P. B.," Stafford, would like readers' experiences of 4½ h.p. F.N., particularly with regard to economy in pe and oil, vibration, upkeep, and starting.

"T. P.," Pontypridd, would be glad of readers' experien of a sidecar attached to a 3½ h.p. 1908 Triumph, fo moderately hilly district.

MOTOR BICYCLES FOR SALE.

ANGLIAN Motor Cycles, with simplest and most practical two-speed gear.—Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

SIDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London agents, H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W.

2¼ h.p. Kerry Cycle, tyres new; £9. — T. Lynn, Bridge Street, Andover.

F.N., 2¾ h.p., Palmer cord tyres, good condition.—A., 24, Fulham Road, London.

2¾ h.p. Minerva, good order, 1906 machine; bargain; offers.—Motor, Albany House, Bath.

FOUR-CYLINDER F.N., 4½ h.p., magneto, perfect order; £30.—Rev. Broad, Teignmouth.

3 h.p. Auto, Chater-Lea, Longuemare, Bassee coil, tyres as new; £10.—Hunt, Alton.

MINERVA, 2 h.p., good running order; £7 10s., lowest, bargain.—41, Linton Street, Islington.

TRIUMPH, 1905, 3 h.p., perfect condition; 17 guineas. — Morris, 139a, Finchley Road, N.W.

£10.—Minerva, Chater-Lea, splendid condition.—19, Hereford Gardens, Longhurst Road, Lee.

3 h.p. Triumph, magneto, spring forks, in good running order; £23.—Cross, Jeweller, Rotherham.

FOR Sale, Singer Motor Cycle, belt driven, as new; £28, no offers.—Dormer, Surveyor, Chesham.

5-6 h.p. Twin Rex, spring forks, guaranteed; only £18 10s.—Garaged, Hardy's, Carlton Street, Halifax.

ROVER 2½ h.p. Lightweight, good running condition; accept £16.—Seen, 161, Essex Road, Islington, N.

£12.—Riley, 2½ h.p. Minerva engine, perfect running order.—Jeweller, 62, Southampton Row, Holborn.

ROC, 3½ h.p., magneto, clutch, practically new, unscratched; £21.—41, Skelbrook Street, Wandsworth.

TRIUMPH, 1906, magneto, perfect condition, done 2,036 miles; £23, or offer.—4, Warwick Gardens, Ilford.

3½ h.p. Quadrant spring fork motor cycle; seen London; offers wanted.—80, Bispham Road, Southport.

4 h.p. Roc, handle starting, magneto, in new condition; any trial; £23 10s.—Tuson, jun., Leominster.

2½ h.p. Lightweight Quadrant, good hill-climber, just overhauled; £9.—James, 102, North End, Croydon.

SPECIAL Excelsior, 3.6 h.h.p., long, low, spring forks.—Particulars, Major Hart, Handsworth, Staffordshire.

£3 18s.—Werner, 2 h.p., spray, Bowdens; wants overhauling; must sell.—Brown, 518, Kingsland Road, Dalston.

3 h.p. Humber, perfect running order, new Dunlops, excellent condition; £8 10s.—223, Ditchling Road, Brighton.

MINERVA, 3½ h.p., with Fit-all two-speed gear, splendid order; £18, or exchange.—Parker, Melbourne, Derby.

1907 Triumph for sale, 3½ h.p., no worse than new, in splendid order; £33.—G. Teasdale, Chilton, Ferryhill.

1¼ h.p. Lightweight N.S.U., magneto ignition; £7 10s. cash.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

UNREDEEMED Pledge. — 3½ h.p., splendid condition, complete; £13.—518, Kingston Road, Raynes Park, S.W.

2¾ h.p. Minerva, almost new, two accumulators, and in splendid condition; £20.—131, Grange Park Road, Leyton.

3½ h.p. Kerry, thorough going order, just overhauled; £14; seen after 5.—Collins, Hollies, Little Park, Enfield.

5-6 h.p. Rex, cantilever seat, spring forks, nearly new, not run 500 miles, absolutely reliable; £30.—Butterworth, Pocklington.

BOOTH'S MOTOR EXCHANGE.

£6 and a 3½ h.p. Rex or decent machine of other make secures a splendid 6 h.p. Twin Rex, low built.

£5 and your high built machine secures a low built 3½ h.p. Rex.

5½ h.p. TWIN N.S.U. magneto	£29	0
3½ h.p. TRIUMPH, new (1908)	48	0
3½ h.p. TRIUMPH (1907)	35	0
5½ h.p. TWIN VINDEC, magneto	33	10
6 h.p. TWIN REX, fitted with new 8 guinea Millford sidecar	25	10
5½ h.p. REX DE LUXE, Roc clutch, magneto, twin tyres	27	10
5½ h.p. TWIN REX, black finish	22	10
3½ h.p. REX, magneto, speed pulley	18	18
5½ h.p. TWIN REX, magneto, spring seat	23	10
3½ h.p. REX, spring forks, low built	15	15
3½ h.p. REX, 50 guinea model	10	10
4 h.p. ROC, 1907, magneto, clutch	30	0
4 h.p. ANTOINE, M.O.V., low built	14	14
Four-cylinder F.N., magneto	23	10
3 h.p. HUMBER, free engine	11	10
2½ h.p. ARIEL Lightweight, 26" wheels	12	12
3½ h.p. EXCELSIOR, 26" wheels	11	11
3½ h.p. TRIUMPH, 1907	35	0
6 h.p. TWIN ANTOINE, like new	22	10
6 h.p. TWIN ANTOINE sets, new	19	19
5 h.p. TWIN KERRY, smart machine	22	10
5 h.p. TWIN G.B., magneto, spring forks	25	10
3½ h.p. N.S.U., magneto, 2½" tyres	22	10
3½ h.p. MINERVA, very smart	16	16
3½ h.p. CHATER-LEA, vertical engine	13	13
3½ h.p. QUADRANT, brand new (1908),	42	0
2¾ h.p. KERRY, tyres like new	11	10
2½ h.p. KERRY, low and smart	10	10
3 h.p. HUMBER, free engine	11	10
3 h.p. ARIEL, 26" wheels, M.O.V.	11	10
2¾ h.p. ARIEL-MINERVA, low	11	10
3 h.p. WERNER, fitted Shaw engine	12	12
3½ h.p. WHITELEY, spray, good tyres	8	15
3 h.p. CLYDE, M.O.V., magneto	11	10

LIGHTWEIGHTS. SPECIAL OFFERS.

3 h.p. BRADBURY, vertical engine	£10	10
3 h.p. PEBOK, vertical engine, low	10	10
2 h.p. MINERVA, M.O.V., 26in. wheels	8	10
2½ h.p. SPARK, vertical engine, magneto	10	10
2½ h.p. JAP, good tyres, reliable	8	15
3 h.p. CALVERT, vertical engine, low	8	15
2¼ h.p. DE DION, vertical engine	8	15
2½ h.p. SAROLEA, vertical, spring forks	9	15
2½ h.p. DE DION, vertical, less tank	6	15
2½ h.p. CENTAUR, enamel like new	8	15
2½ h.p. MINERVA, vertical, low	9	10
2¼ h.p. MINERVA, grand condition	8	15
2½ h.p. REX, vertical, spray	8	15
1¾ h.p. MINERVA, good condition	6	15
1½ h.p. QUADRANT, very reliable	6	15
1½ h.p. MINERVA, very fast	5	15

Push cycles part payment.

TRICARS.

10 h.p. TWIN REXETTE, open frame, sprung, two speeds, special finish	£45	10
5 h.p. HUMBER, W.C., open frame, wheel steering, two speeds	35	0
4 h.p. HUMBER, W.C., Phelon & Moore two-speed gear, coach built	18	10
4 h.p. TRENT, W.C., open frame, two speeds, wheel steering	18	10
4 h.p. DERRICK, coach built, free engine	16	16
4 h.p. REX, free engine, special engine	17	17
3½ h.p. ROYAL SOVEREIGN, light	11	11
6 h.p. TWIN REX, forecarriage fitted, magneto, spring seat	27	10
3½ h.p. WHITE & POPPE, M.O.V., Kent three-speed gear	16	16

MOTOR TRICYCLES.

2¾ h.p. BEESTON HUMBER, good tyres	£6	10
3½ h.p. AUTO MOTO, good order	6	10
Tricycle, less engine, two speeds, tyres	3	0

SIDECARS.

MILLS-FULFORD, rigid, like new	£8	10
MILLS-FULFORD, castor wheel	8	10
BRITISH STANDARD, rigid	4	5

ENGINES.

New 6 h.p. TWIN ANTOINE, complete	£8	5
Ditto, nearly new	7	10
6 h.p. AVON, W.C., up-to-date, M.O.V.	8	5
5 h.p. ANTOINE, M.O.V., nearly new, W.C.	8	5
2¾ h.p. NOBLE, M.O.V., vertical	3	5
2 h.p. MADISON, good order	1	15
1½ h.p. MINERVA, inclined	1	10
4 h.p. EOC, M.O.V., magneto	9	5

Small engines taken in exchange.
High-class motor cycles wanted for cash.

H. BOOTH,

CORONET WORKS, WADE STREET,

HALIFAX.

Telephone 198Y.

MOTOR BICYCLES FOR SALE.

LIGHTWEIGHT Phœnix, wants accumulator, slight repairs, running order; offers.—Woodbine Lodge, Surbiton.

IF You Want Bargains in Second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

MINERVA, 2½ h.p., M.O.V., spring forks, excellent condition, had very little use; 11 guineas.—139a, Finchley Road, N.W.

3¼ h.p. 1905 Rex, Watawata, stand carrier, climb anything, good condition; bargain, £12 5s.—28, Churchill Road, Hackney.

3½ h.p. N.S.U., magneto ignition, 24in. wheels, condition good; £17 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

3 h.p. N.S.U., large brass horn, lamp, and spares, splendid running order; £21, or nearest offer.—Sparkes, Poplars, Chobham.

WHAT Offers for 35-guinea 3½ h.p. Tourist Model Rex, not yet delivered.—Nicholls, Holbrook Lane, Chislehurst, Kent.

MOTOR Cycle, 2 h.p. Minerva Lightweight, spring forks, low built, in excellent condition; £10.—16, Naylor Road, Peckham.

2¾ h.p. Chase, Zedel engine, Chater-Lea frame, good running order; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

FOR Sale, 4 h.p. tricar, four-speed gear, Whittle's belt, studded non-skid, Mabon fan, accessories.—59, Brudenell Grove, Leeds.

4 h.p. Kelecom-Antoine Motor Bicycle, brand new; a very great bargain, £21 10s.—Crypto Car Co., 14, Mortimer Street, London.

3½ h.p. Motor Cycle, M.M.C. engine, good hill-climber, good condition; price £9 10s.—Apply, West, 6, Bridge Street, Newark.

3½ h.p. Minerva Motor Cycle (built May, 1907), with spare belt and tyre; £23.—Apply, C. J. Garrett, 50, Ebury Street, S.W.

3 h.p. Werner, adjustable pulley, grand condition, splendid climber; £13 10s., or close offer.—Gourd, South Street, Exmouth.

1907 Shop-soiled 4 h.p. Roc Cycle for sale; ill-health and too powerful cause of sale.—Harrison, Implement Works, Pocklington.

4 h.p. Roc, free engine, two speeds, magneto, spring forks, grand condition; £35.—Box 9,850, *The Motor Cycle* Offices, Coventry.

2¾-3½ h.p. Bat, M.M.C. engine, good tyres, splendid condition; £18, or nearest offer.—H.W.A., 70, Cromford Road, East Putney.

ABERDEENSHIRE.—Triumph, 3½ h.p., 1907, in good order, lamp, tools, spare belt and other spares; £32.—Turnbull, Smithston, Gartly.

£10, or push bike and cash.—2 h.p. Minerva, splendid condition, absolutely perfect.—3a, Prince's Mews, Prince's Terrace, Bayswater, W.

4 h.p. Roc (magneto), clutch, hand-starting, Palmer cord tyres, condition as new; £25, or offer.—"M.C.," 108, Devonshire Road, Forest Hill.

TRIUMPH Motor Cycle, 2½ h.p., thoroughly reliable, two accumulators; £12, or offer.—Apply to C. F. Blacker, The Knoll, Camberley.

TRIUMPH-MINERVA, 2¼ h.p., M.O.V., in perfect condition, good hill-climber, new back tyre; £11.—10, Bellefield Road, Brixton, S.W.

3¼ h.p. Rex, with new cams and silencer, and good belts (Whittle almost new), in perfect condition; £12.—Wilding, 57, Abbey Road, Barrow.

3½ h.p. Alldays, with spring forks, spares and accessories, in perfect order, and very powerful; £18.—J. James, 139, Acre Lane, Brixton, S.W.

HUDDERSFIELD Agents for Riley and Phœnix tricars and cars; splendid Rexette (S.H.) for sale, cheap.—Moldgreen Engineering Works.

2½ h.p. Globe Motor Cycle, perfect condition, variable pulley, long bars, two belts, accumulators; £10, or offer; no postcards.—Tomlin, Portmore, Lymington.

3 h.p. Triumph; £17; accumulator ignition, tyres and everything in absolutely first-rate order; ride 50 miles to buyer; trial.—Powrie, 65, Bromfelde Road, Clapham, London.

MOTOR BICYCLES FOR SALE.

2¼ h.p. Minerva, new tyres, new belt, in perfect running order, also trailer; £10 both.—77, Wigan Lane, Wigan.

QUADRANT, 5½ h.p., two speeds, perfect condition; price £21.—Apply to Sam Meadows, Cycle Works, Green Lanes, Palmer's Green, N.

WERNER, 1906, 2½ h.p., good condition, Longuemare carburetter; £10, or near offer.—Write, Holmes, Weston Park, Stevenage, Herts.

3½ h.p. Minerva, in going order, two accumulators, cut-out, footboards or pedals; £17 10s.—Goddard, 7, St. James Street, Islington, London, N.

4 h.p. Jap-Quadrant, August, 1907 machine, magneto, spring forks, splendid condition; £28.—Hammond, 63, Watt Road, Erdington, Warwickshire.

2¾ h.p. De Dion Bike, Clincher tyres, as new, new belt, perfect running order; bargain, lowest cash price, £10; spares.—24, Tulse Hill, Brixton.

TRIUMPH, 3½ h.p., 1907, standard, magneto, perfect condition, heavy tread on back tyre; price £33, or offers.—No. 9,438, *The Motor Cycle* Offices, Coventry.

2½ h.p. J.A.P., splendid condition, good as new, tyres nearly new; bargain, £11; complete.—F. Sawkins, Little Hallingbury, Bishop's Stortford, Herts.

1 h.p. Lightweight, good serviceable machine, in excellent running order; £5 10s.; seen and tested after 8.30 p.m.—F.B., 53, College Street, Islington, N.

9 h.p. Riley, 1907, perfect condition, not run 1,800 miles, new tyres, any trial, £75; also 6 h.p. Singer, 1906, £50.—Brookes, 5, Granville Road, Leicester.

3 h.p. Norton, 1906, in fine condition; will sacrifice for £13, or nearest offer; a bargain.—Write, George Highcock, Bold Road, St. Helens Junction, Lancs.

ZENITH Bicar, as new, 3½ h.p. Fafnir, and two-speed gear, Palmer tyres, hardly soiled, Autoloc control levers, Whittle belt.—Trosnant Villa, Pontypool.

3½ h.p. Triumph, magneto, 1907 model, Goodrich non-skid tyre on back, in perfect order and condition; £30.—T. Baker and Sons, Friar Street, Reading.

£8 10s.—2½ h.p. lightweight (90 lbs.), in splendid condition, tyres as new, in good going order.—Apply, G. A. Cox, Thomas Place, West Norwood.

MAGNIFICENT Twin Jap, 6 h.p., automatic carburetter, 5-40 m.p.h., perfect order; what offers? Seen by appointment.—Write, Richford, 294, Burdett Road, E.

2½ h.p. Jap Motor Cycle, Eadie frame, Palmer tyres, with spare accumulator; take £5 10s. and good gent's cycle.—Goldring, Midhurst, Hook Road, Surbiton.

1½ h.p. Minerva Cycle, 2½ h.p. engine, belt rim, V belt, 80 amp. accumulator, acetylene generator for car; £6 10s., or offer.—124, High Street, West Norwood.

TRIUMPH, 3 h.p., magneto, spring forks, new Dermatine, back cover and tubes, in splendid condition; £26, or offer.—119, Fawnbrake Avenue, Herne Hill.

2½ h.p. De Dion, genuine, low, long bars, splendid climber, everything in excellent condition; £12, must sell.—Bamfather and Bale, 6, Laud Street, Croydon.

2 h.p. Werner, low, light, fast and reliable, almost new, spares, also motor house; must be sold; what offers? Photograph 2d.—Elliott, 12, Soho Street, London, W.

2¾ h.p. F.N., magneto ignition, spring fork, splendid condition; price £25; also trailer for sale.—Apply, by letter only, Finch, 15, St. James Road, Surbiton.

TRIUMPH, 3 h.p., late 1906, very little used, in splendid condition, valued Triumphs £26, offers; exchange open frame w.c. tricar.—1a, Lyall Mews, Eaton Square, S.W.

6 h.p. Twin Kerry, coach-built tricar, Norman two speeds, free engine, chain drive; any trial; bargain, £22.—Lees, butcher, Chester Road, Hulme, Manchester.

MINERVA, 3½ h.p., all spares, tools, just overhauled, perfect condition; also sidecar; £20 lowest; any trial.—Eden, 14, Clarence Road, Sparkhill, Birmingham.

SATISFACTION.

Rubber and Canvas V Belting. Embodies all good points of other rubber belts without their drawbacks. "A distinct improvement."

NOTE.—The prices are between 33% and 50% less than other makes. Good rubber belts need not be dear. Send cash for sample length on approval. ⅝" 9d., ¾" 1/-, ⅞" 1/4, 1" 1/8 per foot Any length cut. Fasteners 6d. each.

CASH, CREDIT, or EXCHANGE.

2½ h.p. MINERVA, good condition.....	£9	0
5½ h.p. REX DE LUXE, twin tyres, clutch	26	0
4-cylinder F.N., fine machine	26	0
1¾ h.p. G.B., magneto, Nala two speeds..	37	0
3½ h.p. REX, 22" frame	11	0
5 h.p. Twin KERRY, very low	22	0
5½ h.p. Twin REX, lovely goer	20	0
4 h.p. ANTOINE, magneto, 1907	22	0
3½ h.p. 1906 REX, spring forks, etc.	15	0
3½ h.p. 1905 REX, spring forks, 26" wheels	13	0
3 h.p. TRIUMPH, lovely goer	25	0
3 h.p. MINERVA, vertical, M.O.V.	12	0
3 h.p. N.S.U., fine goer	16	0
3½ h.p. EXCELSIOR, smart	10	0
2¾ h.p. R & P., 26" wheels, vertical	10	0
3 h.p. CLARENDON, good, vertical ..	10	0
3½ h.p. AUTO-MOTOR, spray, vertical..	10	0
2¾ h.p. GRIFFON, spray, vertical	10	0
3 h.p. NOBLE, spray, vertical	10	0
3 h.p. REX, vertical	10	0
2¾ h.p. HUMBER, spray, trembler	10	0
1¾ h.p. MINERVA, spray, 26" wheels....	6	10
2 h.p. QUADRANT, spray, smart	7	10
2½ h.p. HUMBER, spray	9	0
2½ h.p. REGAL, vertical, spray, 26" wheels	9	0
2½ h.p. CYCLONE, spray, vertical	7	0
2 h.p. MINERVA, M.O.V., 26" wheels..	9	9

ALBION V BELTING.

New principle longest life.
⅝" 7d., ¾" 8d., ⅞" 9d., 1" 10d. per foot.

TRICARS.

5½ h.p. REXETTE, spring frame	£35	0
5 h.p. REXETTE, two speeds	29	0
4½ h.p. REXETTE, water cooled	25	0
4½ h.p. Water-cooled Quad, two speeds ..	16	0

ENGINES.

3½ h.p. Quadrant	£4 10	3 h.p. King ..	£2 19
3½ h.p. Standard	3 3	3 h.p. De Dion	4 0
3 h.p. X.L.	2 19	3½ h.p. Lucas ..	2 19
		4½ h.p. Aster....	5 10
1¾ h.p. Minerva and frame			2 5

SIDECARS.

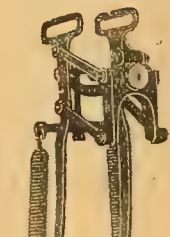
Montgomery ....£4 10 | British Standard £5 0

NEW TYRES FOR OLD.

Genuine Continentals.	Cover.	Tube.	Genuine Continentals.	Cover.	Tube.
26 × 2	24/-	9/6	28 × 2	25/-	10/-
26 × 2¼	25/6	10/-	28 × 2¼	27/3	10/6
26 × 2½	29/6	11/-	28 × 2½	29/9	11/3

3/- allowed for old covers, 2/- for old tubes.
Traders and Agents send for discounts.

CANTILEVER SPRING SEATS.



Luxurious and strong. Fit any machine. 10/- each.

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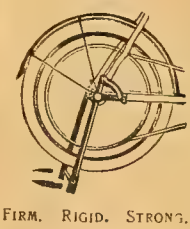

FIRM. RIGID. STRONG.
For 24in., 26in., or 28in. wheels.
4/9 per pair. Worth three times the money.

Send for Price List of Accessories. Pounds saved.

HIGH-CLASS MOTOR CYCLES WANTED.

E. FARRAR,
Albion Works, Square Road, HALIFAX
Next door to Square Church.

MOTOR BICYCLES FOR SALE

TRIUMPH, 1906, in good condition; £20 approval.—Below.

ORMONDE, 1¾ h.p.; take £5, or good pus bike, three-speed. — Frank Whitake Green Street Green, Orpington.

MINERVA, 2 h.p., splendid machine, ver good condition; £11.—Hollick, Wick ford, Essex.

2 h.p. Minerva, vertical; £7; splendid con dition.—Greengrocer, South Bruto Mews, Bond Street, W.

3½ h.p. 1907 Magneto Triumph, in perfec condition and running order; £33 10 —Wauchope's, 9, Shoe Lane, Fleet Street, E.

2 h.p. Werner, Clincher tyres, perfect, jus overhauled; ready for the road 6 guineas.—Breeze, 74, High Street, Aldersho

1907 3½ h.p. Minerva, spring front forks, very good condition indeed; pric £21.—Wauchope's, 9, Shoe Lane, Fleet Stree E.C.

PHŒNIX-MINERVA, 1¾ h.p., long handl bars, low seat; £6 10s., or for anythir useful.—Apply, 30, Minerva Street, Hackne Road, N.E.

MINERVA, 2¾ h.p., Longuemare carbure ter, spring saddle pillar, perfect cond tion; £11.—Watchmaker, 53, Church Stree Kensington, W.

3½ h.p. Bat, spring frame, M.M.C. engin 3½ De Dion carburetter, condition abs lutely as new; price £18 10s.—Wauchope 9, Shoe Lane, Fleet Street, E.C.

TRIUMPH, 3 h.p., Palmers, Watawat stand, carrier, spares, recently ove hauled, splendid running order; £21.—Eve ingham, Pocklington.

2¾ h.p. Phœnix, with two-speed gear, exc lent machine, good on hills, etc.; 10s.—Wauchope's, 9, Shoe Lane, Fleet Stre E.C.

BARGAIN.—2¾ h.p. Benledi, Kynoch engi in good running order; £6 10s. cash, good push bike and cash. — Collins, 1, G goigne Road, Barking.

3 h.p. Fafnir, Chater-Lea frame, non-sl on back wheel, M.O.V., in new con tion; £19 15s.—Wauchope's, 9, Shoe La Fleet Street, E.C.

£4 15s.—1¾ h.p. Quadrant, Minerva engi F.N. spray, trembler, new back ty too cheap for approval.—Dutfield, 73, Hi Street, Whitstable.

3 h.p. Chase, Decart engine, Chater-L frame, very powerful and fast machi a good sound roadster; £10 10s.—Wauchop 9, Shoe Lane, E.C.

3½ h.p. 1907 Minerva, splendid running or and condition, new Continental ty lamp, horn, stand, tools; £20.—Hankin, Tremadoc Road, Clapham.

1¾ h.p. Ariel Cycle, Minerva engine, spl did condition; £11, or offer; runn order; bargain.—Pearce, Gladstone Ro Buckhurst Hill, Essex.

4 h.p. Twin-cylinder Werner, divided cyl ders, just thoroughly overhauled, 1 model; £16 10s.—Wauchope's, 9, Shoe La Fleet Street, London, E.C.

1906 3¾ h.p. Rex, spring forks, excellent c dition, powerful, thoroughly reliab £15, or lower power and cash. — A.T.S., Colvestone Crescent, Dalston, London.

2¼ h.p. De Dion; £9; suitable for not hilly district, easiest starting mo on the road; first cheque has it; in perf order.—W. J. Herbert, Wallsend Studio.

WAUCHOPE'S have some good bargain second-hand motor cycles from 10s.; send for list.—Wauchope's, 9, Shoe La Fleet Street, London, E.C.

TRIUMPH, registered January, 1907, 3½ h magneto, and accessories, little ridd good as new, even to tyres, plating and amelling; £30.—S., 10, Windsor Terr Whitby.

2 h.p. Light Fairy, twin-cylinder engi chain and belt drive, in excellent c dition, horizontal engine; £15 15s. — W chope's, 9, Shoe Lane, Fleet Street, Lond E.C.

2½ h.p. Givaudan, Chater-Lea, Longuem Dermatine belt, accessories, excell condition throughout; £12, or offers; appointment.—J.T.T., 106, Humber Road, Bla heath, S.E.

TOR BICYCLES FOR SALE.

, 2¾ h.p., good condition, Palmer tyres; £15, or offer.—62, Wrentham Avenue, den.

h.p. Rex, F.N. spray, in good running order; bargain, £12 12s.—17, St. Leon-Road, Hove.

UMPH, 3½ h.p., late 1907, magneto, new yres and belt, perfect; £33.—Armi-Stone, Staffs.

.p. Kerry, copper tank, Grose non-skid back, Longuemare, low, fast; £17.—ldison Gardens, W.

MBER, 2½ h.p., new condition, chain rive, new Dunlop cover, good climber; Stake, Briggate, Brighouse.

New, Minerva 1¾ h.p. lightweight motor ycle; take push cycle in part.—D. Jack-ll, Larkhall Lane, Clapham.

. Minerva, Chater-Lea frame, tyres xcellent condition, engine little used; arker, opposite Station, Worthing.

.p. Kerry, F.N. carburetter, Palmers, ermatine belt, sound, reliable; bar-69 15s.—22, Grove Mews, Hammersmith.

. Quadrant, spring forks, £10; 3 h.p. lobart, £10; 2 h.p. Quadrant, £8; 1¾ inerva, £6.—Gibbon and Co., Aberavon.

. Quadrant, long bars, low saddle, andle-bar control, spring forks, good ion; £12.—63, Pine Road, Cricklewood.

ELSIOR, 3½ h.p. M.M.C. engine, long andles, low seat, new Palmers, per-£10.—34, Evering Road, Stoke Newing-

p. Minerva, tyres perfect, twin accu-mulators, condition as new; bargain, , Barnsley Road, Goldthorpe, Rother-

Triumph, late 1906, little used, hardly soiled, guaranteed faultless; owner car; £24.—Motor Works, East Street, on.

. Olympic Motor Cycle, nearly new, grand goer, lot of spares; approval ly; £18, a bargain.—A. Baker, Bea-, Devon.

T.T. Model Vindec, as raced at Brook-nds, hill-climbs, etc.; any trial given. , O. L. Bickford, 23, Merton Street,

2¾ h.p., new engine fitted, low frame, wheels, excellent condition; appro-leposit; £14.—Morris, Photographer,

. Twin Rex, good condition, numerous spares, fast, splendid hill-climber, ion invited; what offers? — Sawyer, Regis.

Metallurgique, all latest improve-ents, new condition; photo sent; any £19.—Motorist, Brunswickhouse, Ro-oad, N.

p. Fafnir, Chater-Lea, spring forks, Bowdens, Palmer cord tyres, magneto, s new; £12; photo sixpence. — 26, Gate, Loughborough.

Guineas.—2¾ h.p. F.N., Chater-Lea, nlops, excellent running order, fast, imber, or exchange cash and good —209, Banbury Road, Oxford.

RANT, 3½ h.p., 1906-1907 pattern, not lden 500, condition as new, together bout £5 accessories; £27.—Seen at Stores, Newgate Street, London.

p. Rex, Dunlop tyres, B100 saddle, stand-carrier, spares, trial, £12 10s.; p. Bat pattern, same price.—Nevett, n Street, Vauxhall, Liverpool.

. Kerry Motor Bicycle, Modele de Luxe, fitted with long handle-bar and low footboards, perfect running order; 2 guineas. —Taylor, Oxford Road, r.

. Brown, Clincher tyres, spare cover, Watawata belt, horn, lamp, carrier, stand, accumulator, spares, tools, and machine, splendid condition, like 18 10s.—Phillips, Queen's Road, Chor-

EC, 5 h.p., twin, 1907 machine, splen-l condition, magneto, two-speed gear, ble pulley, spring forks, armoured re, carrier, horn, and spares, also new castor wheel sidecar, complete; —Duesbury, Gas Works, Hertford.

TYRES! TYRES! TYRES!

Palmers ..	26 x 2	23/6
	26 x 2½	26/6
Peter Unions	24 x 2½	15/6
	28 x 2¼	15/6

Shamrock, Excelsiors, Goodri h's.

Write for prices. State style required.

HIGH-CLASS TYRES.		BEST MAKE.	
	Cover.	Tube.	Cover.	Tube.
26×2	15/9	7/-	28×2	16/3	7/6
26×2¼	16/9	7/6	28×2¼	17/3	8/-
26×2½	21/-	8/-	28×2½	21/-	8/6

Beaded or wired edges. Instant delivery.
PALMER TYRES, special quotation free.

GRIPSKIN BELT.—Scientifically made from selected parts of hides. An efficient belt at a popular price. Outlasts two rubber belts. Correct angle, perfect drive, non-stretching. We send on approval on receipt of P.O.

⅜in. 9d., ½in. 10½d., ⅝in. 1/-, 1in. 1/1.
Special terms to the trade.

NON-TREMBLER. MIDGET TYPE.		SYNTONIC TREMBLER. 3,000 revolutions.	
One cylinder	10/3	One cylinder	17/6
Twin cylinders ..	21/-	Twin cylinders ..	35/-

We make a liberal allowance for your trouble-some coil in part payment. Buy a FULLER and your misfiring troubles are over.

New Accumulators for Old.

	Large stock.		Genuine Fuller's.
C2 type	17/-	Midget type ..	16/-
Rex type	16/-	Minerva type ..	17/-

Every cell guaranteed.

Patent non-corroding terminals. Made to withstand the vibration of a motor cycle. Large stock. Quick delivery. We allow 5/6 for your old accumulator in part payment.

MILLFORD SIDECARS.

No side-slip. Castor Wheel or Rigid. Instant delivery.

33⅓% INCREASE IN HORSE-POWER.

when Castor Wheel sidecars are used. No side-drag. Uninterrupted steering. We take your loose-jointed sidecar or other goods in part payment. Special inducements to cash buyers.

CORONET VARIABLE SPEED PULLEY.

For all makes of motors. Patent locking arrangement. Gear your machinet to suit the district. 14/- each, plated.

We carry a stock to fit Rexes, Minervas, Triumphs, Vindecs. If not a standard make send old pulley or drawing.

ACCESSORIES.

New pair of Motor Cycle Wheels, 26in., belt rim, and two cable brakes fitted	£2 0
New Motor Frames for twin engines, low built	£2 10
Six Accumulators, require slight repair....	10/-
N.A.B. Spring Seat-pillar	5/6
New Ukante Stands	7/6
New Price's Stands for 26in. wheels	5/11
New Charging Dynamo, Switchboard	£2 10
New Motor Frames, wheels, brakes, rubber belt, ready for engine	£5 15
Motor Mudguards, complete with stays and screws ..... 3in. 2/11, 4in.	3/6
Silent Silencers, suit engines to 5 h.p., no back pressure	3/3
Fifty pairs Xl'all Spring Forks (1908).	
Massive Horns, deep tone	3/9
Double-twist Horns, terrible noise	4/9
Voltmeters, watch pattern	4/1
High-tension Wire ..... per yard	1/1
Low-tension Wire ..... „	-/5
Best Mica Plugs	1/1
Long Handle-bars, well plated .... 4/9 and	5/6
Quantity Stanley Belting, all sizes.	
New Motor Pedals, 4½in. wide .. per pair	4/6
Hellior Searchlights, detachable magnifying mirror lens, fixed or separate generators, sold elsewhere 25/-	12/6
Gas Lamps, separate generators	5/3
Brooks B100 Saddle	11/6
Box of Brass Terminals	-/9
Leather toolbags, pockets for everything	6 3
New low tension magneto	25/-
Ditto, nearly new.....	20/-
4-cylinder non-trembler car coil	10-
2-cylinder non-trembler car coil.....	18-
Six-feed brass lubricator	15/-
Ten do. do.	22 6
£5 Ducellier car headlight, brass	22/6
Pair Silsbury Flaro headlights	£2 5
4-cylinder trembler coil, car	30/-
6-cylinder ditto.....	35/-

WE ARE WANTING

Rex de Luxe, 3½ h.p. Magneto Rex, Triumph, 4 h.p. Roc, Jap, Bat, Gramophone, Sidecar, Ladies' Gold Guard, Bangle.

CASH AND CLIENTS WAITING.

BOOTH'S MOTOR EXCHANGE,
Coronet Works, Wade Street,
HALIFAX.
Telephone 198Y.

MOTOR BICYCLES FOR SALE.

3 h.p. Quadrant, vertical engine, Brown and Barlow, handle-bar control, carburetter, special tank, just overhauled throughout; any trial.—Blockley, Wellington, Salop.

MOTOR Cycle, 4 h.p. Antoine, Mills-Fulford forecar, Clinchers all round, Brooks non-skid back, enamelled green, long bars, nearly new; £25.—Baker, 1, Depot Street, Derby.

2¾ h.p. De Dion, excellent condition, Dunlop tyres and tubes, as new, £10; also light motor frame and wheels, Palmer flat tread. — Particulars, Wells, Stilton, Peterborough.

VINDEC Special, 5 h.p., Truffault, magneto, many improvements, new August, 1907, little used, perfect condition; owner going abroad; nearest to £38.—Oreston, Sidcup, Kent.

2¾ h.p. Motor Cycle, Noble engine, Chater-Lea frame, low, long handle-bars, new belt, pulley, and accumulator; bargain, £15.—Rogers, Woodland House, The Woodlands, Hither Green, S.E.

M.M.C.-EXCELSIOR, Longuemare, trembler, new unpunctured Clincher, spare valves, non-skid, belt, pulley, splendid going order; must sell; price £12 10s.—Timms, 82, Kingston Road, Oxford.

£20, or best cash offer.—Bat motor cycle, 3½ h.p., absolutely perfect, new back tyre, spring frame, lamp, toolbag, and horn; bargain hunters please note.—No. 9,862, *The Motor Cycle* Offices, Coventry.

3½ h.p. Minerva, spring forks, M.O.V., good hill-climber, recently overhauled, excellent condition, £14 14s.; also forecar to fit same, Mills-Fulford, £5.—Reynolds, c/o Motor Garage, Williton, Somerset.

£7.—1¾ h.p. lightweight Minerva, fast, B.S.A. fittings, low frame, long handle-bars, Longuemare carburetter; gent's push bike taken in part payment. — A. Hurrell, 3, Glenny Road, Barking, Essex.

2¾ h.p. De Dion-Bat, De Dion carburetter, and coil, very fast, footboards, lamp, horn, etc., splendid hill-climber; £16, or near offer, genuine bargain. — Pizey, 7a, Lower Belgrave Street, London.

ROVER, 3 h.p., in splendid running order and good condition, free engine, handle starting, chain drive, engine just overhauled by makers, Palmer tyres, including extra Palmer tyre; £17.—Mills, Hotel Victoria, Holywell.

6 h.p. Magneto N.S.U., rigid sidecar, two speeds, spring forks, 2½in. tyres, new November, perfect condition, not run thousand miles, spare tyre and wheel, leather and rubber jackets and overalls; £55; trial by appointment.—9,861, *The Motor Cycle* Offices, Coventry.

THE Bargain of the Week.—Late 1906 motor cycle, Griffon, 3½ h.p. Zedel engine, Palmer cords, Longuemare, new belt, absolutely reliable, exceptional hill-climber, every refinement; any trial; expert examination invited; sacrifice for £15.—Millard, Dinnington, Rotherham.

VINDEC Special, 5 h.p., twin, magneto, Truffault suspension, P.U. 2¼in. tyres, very low frame, excellent condition, tyres unscratched; £30, or exchange 3½ h.p., magneto, single. Triumph preferred; wanted, 2¾ h.p. Minerva engine, cheap.—Lidderdale, Weeping Cross, Stafford.

5 h.p. Twin Vindec, magneto, Truffault forks, new condition, 2½in. Peter-Union tyres, heavy quality, most complete lot of spares, highest quality accessories, separate generator Hella searchlight lamp, ready for immediate use; £35.—W. Montgomery and Co., Bury St. Edmund's.

QUADRANT, 3½ h.p. (October, 1906), battery ignition, together with sidecar, Autoclipse lamp, generator, apron, toolbox, new tyres on back wheel and sidecar, Rich tube in back wheel, spare butted tube and parts; trial run by appointment.—Robini, 3a, Dulwich Road, Herne Hill, S.E.

3½ h.p. Minerva, 1907, spring forks, Wright's spring footrests, large acetylene lamp, large toolbag, two accumulators, new Whittle belt, two pulleys, spare valves and spare tyre, new sidecar, all in new and perfect condition; the complete turnout £25; also Osborne four-speed gear to fit same, just new, £3 10s.—35, Mount Pleasant Road, Stroud Green, N.

MOTOR BICYCLES FOR SALE.

5 h.p. Twin Peugeot, Chater-Lea, splendid machine, as new, not done 500; £28 10s.—128, High Road, Tottenham.

3½ h.p. Twin Werner, low machine, long bars, only soiled, and in beautiful order; £17 10s.—Above address.

3⅜ h.p. Rex, spring forks, Continentals, as new, grand goer; £15.—Address above.

3 h.p. Trent, Chater-Lea, long bars, low seat; a genuine bargain, £11 10s.—Address above.

2¼ h.p. Humber, Longuemare, almost new, grand hill-climber, long bars, etc., guaranteed; £8 10s.—Address above.

3¼ h.p. M.M.C., low-built, Chater-Lea frame, thoroughly done up, as new, very powerful and fast; real bargain, £12 10s.—Address above.

3½ h.p. London, Chater-Lea frame, handle-bar control, accessories, very fast and powerful, splendid condition and perfect working order; great bargain, £11 10s.—Address above.

5 h.p. Twin Hamilton, B. and B. carburetter, very fast and powerful, perfect condition, grand for passenger work; £17 10s.—Address above.

TRIUMPH Motor Cycles.—Agents, Bright and Hayles, Camber Motor Works, Church Street, Camberwell.

REX De LUXE, 3½ h.p., magneto, free engine; £25, bargain.—22, Victoria Terrace, Leamington.

GODFREY and Applebee.—All makes of machines supplied and thoroughly tested before delivery. Rex a speciality.

GODFREY and Applebee, the men with the reputation. Send us your machine to tune up for that hill-climb you want to win; charges moderate.

GODFREY and Applebee. — Exchanges, gradual payments, and repairs.

GODFREY and Applebee.—2¾ h.p. Phœnix-Minerva, grand machine, perfect order, £11 10s.; twin Rexes, £18 10s.; single Rexes, £14 10s.; all machines tuned up before delivery.

GODFREY and Applebee.—3½ h.p. Dux, just been built up in Chater frame, very low, copper tanks, enamelled black, not ridden 20 miles, guaranteed perfect order; £14 10s.

GODFREY and Applebee.—2¾ h.p. Brown, built low, very fast; £11 10s.

GODFREY and Applebee.—Buy your new machine through us, and have it tuned up free of cost; Rex a speciality; second-hand machines sold on commission. — 9, Church Hill, Walthamstow.

CLARENDON, latest, reduced from £37 10s. to £25.—Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

TRIUMPHS, Triumphs, 1907, for £41, 1908 £48; your machine part payment.—Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

REX, Rex, from 25 guineas and your old machine taken in part payment; send for list of both Triumph and Rex from their agents, Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

2¾ h.p. Genuine De Dion, long handle-bars, low seat, Longuemare carburetter, Dermatine belt, Palmer front, corded ditto back, guaranteed in perfect condition, complete with spring front forks, stand, and accumulator; £12 10s., no offers.—Lacey, 8, Costa Street, Peckham, S.E.

EDINBUGRH. — Alexander's Motor Exchange, 110, Lothian Road, the largest variety and stock of motor cycles in Scotland; agents for Quadrant, Griffon, Rex, N.S.U., Adler, Roc, Minerva, Vindec, and Moto-Reve motors; repairs, spare parts; exchanges, easy payments.

1906 5-6 h.p. Twin Rex, cantilever seat, spring forks, A Won Clincher tyres, separate generator lamp, stand, horn, tool-bag, tools, in perfect condition, bought end of the year, hardly been used; expert inspection invited; nearest offer to £22 accepted.—Morris, 49, Hackney Road, London, N.E.

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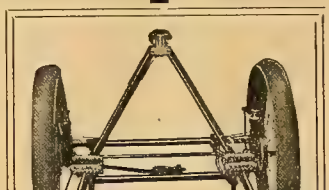

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HAMPSTEAD.—Brand new 1¾ h.p. F.N. lig weight, shop-soiled; only £30; approv deposit.

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They contain all the latest improvements in storage battery construction. Our new list will tell you why "E.P.R." cells are now so generally used. It will also save your money. A post card will bring you a copy by next post.

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GENUINE De Dion 3 h.p. Tricycle, Continental motor tyres, nearly new, good condition, fast; photo sent; £15, cost £65.—Wilson, 2, York Terrace, Ramsgate.

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QUADCAR, 4½ h.p. w.c. De Dion, two speeds, bucket seats, wheel steering, £20; epicyclic gear, two speeds and reverse, suit tricar, £3; 8 h.p. w.c. engine, new condition, £13 10s.—Crawley, Yoxall, Burton-on-Trent.

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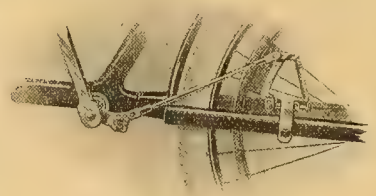

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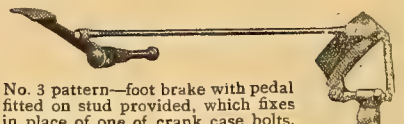

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TWO-SEATED Car, nearly new; £55; m cycle part exchange.—105, Church R Willesden.

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10-12 h.p. Four-seater Car, just overhaul £85; tricar or motor cycle part.—T Wolsingham, Co. Durham.

SUNBEAM-MABLEY, 3½ h.p. De Dion, wa cooled, two-seater, splendid conditi £25.—Meadows, Station Street, Keswick.

4½ h.p. De Dion Progress Car, vis-a-vis, condition; £45, or exchange tricar cash.—Dallinger, Bury St. Edmunds.

15 h.p. British Duryea, 1906, three cylind side entrance, tonneau; cost £500, cept £65, or part exchange.—98, Potter ton Lane, Leeds.

6½ h.p. Humberette, three speeds and verse (direct drive on top), lamps horn, grand condition; £32 10s. — Robb Engineer, 334, Clapham Road, S.W.

3½ h.p. Genuine De Dion Car, in per condition, needs no explanation very useful runabout for £25; trial pleasure.—Martin's Garage, Lewes.

EAGLE Runabout, water-cooled, 7-8 twin engine, single bucket seat, w steering, two speeds; worth £50; cff —9,851, *The Motor Cycle* Offices, Coventry

HALIFAX.—9 h.p. Fafnir, tonneau, speeds and reverse, 810 by 90 ty cycle or tricar part payment; £57 1s.—I fax Motor Exchange, Westgate, Halifax

6 h.p. Baby Peugeot, three speeds, rev four new tyres, repainted and thoro ly overhauled, many spares four lamps cluding Salsbury Flare, separate genera pump, tools, etc.; £49; photo.—Below.

3½ h.p. De Dion Progress, water-co chain drive ball bearings, two sp clutch and brake pedals, very light car, wheels, tyres perfect, long bonnet in fr photo; perfect order; £19 10s.—Below.

FOR Sale or exchange, M.M.C. char-a-b 10 h.p., carry nine, very reliable, gears, new tyres, no further use for s exchange two-seater or tricar, or twin well worth £50, £28, or offers. — 30, Street, Bridlington.

12 h.p. M.M.C. seats seven, two cylin spray, solid tyres, De Nevers on splendid condition, three speeds, rever miles trial; price £50, or will exchang small two-seater.—Further particulars, ton, The Ness, Maldon Road, Southend

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8 h.p. Twin-cylindered Fafnir Engine, green, lined white, two-seater, speeds and reverse, three Orient Dietz la four new Continental tyres, etc., spl going order; will take motor cycle or t in part payment.—Joseph Hy. Jessop, W loo, Huddersfield.

ROVER Cars.—We have in stock fo mediate delivery an 8 h.p. four-s car, swing front seat entrance, painted green, and upholstered in red leather model; price £235.—Louis Davis and Moseley, Birmingham.

ROVER Cars are acknowledged to b most reliable car made. For the fessional man, the business man, an man on pleasure bent it offers an idea convenient means of travel. Read the rowing experiences on motor cycle an cars given in the motor cycle, and you realise exactly what we mean when w you can make an appointment and re getting there.

THE Price of the two-seated 6 h.p. is £135, costs less in upkeep th tricar of the same power, and is easier to drive. We are prepared to you a good allowance for your presen chine in exchange, or supply on def payments.—Louis Davis and Son, Mo Birmingham.

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

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ART Two-seated Steam Car, for tricar or motor cycle and cash.—98, Potternewton e, Leeds.

CHANGE, splendid Violin for good 28 by by 2 Palmer, Clincher, cover. — Ramsom, 205, Whalley New Road, Blackburn.

CHANGE, Twin Rex for 1906 Rex and £6, if decent; when you mention exchanges touch our delicate spot.—Maude's, ell Street, Halifax.

h.p. Minerva, nearly new, perfect, also forecar, cane seat, rubber studded s, for higher power, or sell, offers.—Hip-, 32, Osborne Road, Leyton.

CHANGE, 100-volt Charging and Lighting Dynamo, perfect condition, for upate tricar or twin cycle and sidecar; no ish.—Green, Printer, Brandon.

CHANGE, for good sidecar, or sell, Beeston Humber tricycle, 3 h.p., cost 75 eas, in perfect condition; any trial; and reliable.—S.W., 2, Acorn Villas, bley, Middlesex.

CHANGE 5½ h.p. Peugeot two-seated car, overhauled and re-painted, first-class r, for 1907 3½ h.p. motor cycle, magneto, frame, 26in. wheels, or sell £35.—S., 13, lington Street, Dundee.

ANTED, back-pedal Belt Rim Brake; exchange two lengths 8ft. Rawido, and length Watawata ⅞in. belting, good con-n; approval, or buy and sell.—Tarrant, endeen Road, Sheffield.

DSMOBILE Car, in splendid condition, special body, seats three, with hood, e tyre, three brass lamps, very smart, order, guaranteed, for approved tricar. wson, Burley Mount, Leeds.

CHANGE, Edison Electric Concert Phonograph, two dozen large records, extra drel for small, large horn, stand, accu-tor, etc., perfect, cost over £50, for good r bicycle.—Spencer, Lider Cottage, noaks.

NT'S Cycle, three-speed, coaster, Harvey's patent cranks, exchange motor ; 28 by 2¼ studded cover for 26 by 2⅛, or 25s.; wanted, exhaust siren, motor cycle , etc.—M. Pitcher, Tiddington, Strat-on-Avon.

h.p. Brown, brass torpedo tank, No. 6 Chater-Lea, variable pulley, with ar, £20, or near; also 2½ h.p. light-ht, vertical engine, low, fast, climb any-, £10, or near; would exchange lot for twin and sidecar.—26, Lansdowne Hill, Norwood.

WANTED.

CECOURSE Garage, Doncaster, wants to purchase modern motor cycles for spot

ANTED, Motor Cycle or Tricar, new condition. — Andrew Hogg, "Ochils," n.

ANTED, 2¼ h.p. Rover lightweight, new. —Peerless, 85, Lower Addiscombe Road, don.

ANTED, 2-3 h.p. bicycle, good condition, first-class make; full particulars. —, Ballyragget.

ANTED, B.B. carburetter, suit 3½ h.p., for cash; approval.—John Currie, e, New Cumnock.

ANTED, 20 amp. accumulator, height 5½in.; also stand; cheap, approval.—7, ay Terrace, Fochriw.

ANTED, chain wheel, 76 by ½ by ⅜ pitch, also countershaft, wheels, and chain. C., 187, Gray's Inn Road, W.C.

ANTED, motor cycle, for cash, 3 h.p.; state rock bottom price only.—E. ng, King's Mill House, Stamford.

ANTED, Triumphs, Rocs, Rex de Luxes, F.N. lightweights, N.S.U.'s; cash wait-Halifax Motor Exchange, Westgate, ax.

CAR Wanted, open frame, water-cooled, wheel steering, two or three speeds, 3 h.p. Fafnir motor cycle, Chater-Lea gs, in part payment.—Whitehead, Rye, x.

CAR, exchange Columbia graphophone, -guinea model, new condition, com-with 70 records, 30in. horn, stand, or guineas.—Whitehouse, Stanfree, Shut-od, Chesterfield.

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Spring steel.

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Price 1/- each

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State depth of belt.

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STANLEY DERMATINE MOTOR BELT

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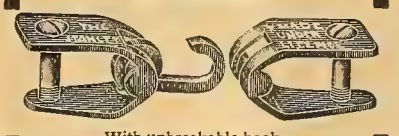

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Stanley Webb, Manager.

WANTED.

TRICAR, about 4½ h.p., water-cooled, good condition; see Exchange column.—Lawson, Burley Mount, Leeds.

WANTED.

NALA Hub, or other two-speed gear.—57, Park Road, West Dulwich.

RILEY, 5-6, or 9 h.p., 1907 tricar wanted, for cash.—Morris, Photographer, Bourne.

WANTED, good Motor Cycle for cash, not through trade.—Craig, Ashdene, Sidcup, Kent.

WANTED, Brooks B105 saddle; cheap for cash.—Smith, 25, Gillespie Crescent, Edinburgh.

WANTED, 2¾-3 h.p. engine, vertical, perfect, cheap, cash.—5, Kingcroft Road, Harpenden.

WANTED, 4 h.p. air-cooled De Dion engine, or other good make, new.—Shaw, Wellington, Salop.

WANTED, a free engine clutch, suitable for a twin cycle.—Lloyd, Fitzwilliam Street, Sheffield.

BROOKS (or other) Spring Pan Seat; cheap.—17, Grazebrook Road, Stoke Newington, London, N.

WANTED, good motor cycle cover, beaded edge, 28 by 2.—Seymour, Lower Green, Pembury, Kent.

WANTED, twin engine, also magneto.—Write only, J. Brown, 169, Mayall Road, Brixton.

WANTED, good waterproof jacket, cheap, for 6ft. rider. — 85, Surrey Street, Middlesbrough.

TWO Covers, 750 by 65, Michelin preferred; cheap; good.—A. Cunningham, London Road, E. Grinstead.

WANTED, pair covers, beaded, 28 by 2, good condition; cheap. — Knowles, Swaffham, Norfolk.

BELT, ⅞in. 8ft., voltmeter, motor cycle gas lamp; approval.—Norris, Little Pagehurst, Staplehurst.

WANTED, pan or similar seat, suit motor cycle; cheap; approval.—Lord, Mountfield, Prestwich.

WANTED, Light Tricar, open frame, 4-6 h.p., water-cooled, good make.—73, Church Street, Camberwell.

WANTED, two tricar covers, heavy, 26 by 2½, gent's cycle given exchange.—52, Junction Road, Leicester.

WANTED, erecting stand, for workshop; exchange Boron charging battery, complete.—Howell, Ingatestone.

WANTED, Front Wheels, 26 by 2½, for tricar, with or without tyres.—43, Steven Street, Stretford, Manchester.

WANTED, 26in. by 2in. beaded cover and tube, also 2 h.p. spray carburetter.—Luker, High Street, Cheltenham.

PHŒNIX Cob, or Zenith bicar, low built, any condition; particulars; lowest price.—230, Smithdown Road, Liverpool.

WANTED, 3½ h.p., Magneto, 1907, low built, real bargain; cash down.—Letters, O., 21, Alexandra Street, New Cross, S.E.

26 by 2¼ Clincher or Continental beaded cover, and pair leather gloves; approval; cheap.—50, Duke Street, Southport.

WANTED, good Motor Cycle and cash, exchange building society bonds, £500, £53 10s. paid in.—No. 9,860, *The Motor Cycle* Offices, Coventry.

WANTED, Motor Cycle, slightly out of order not objected to; send full particulars.—Box L2,315, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

WANTED, 6 h.p. Motor Cycle, magneto, free engine, in exchange for 3½ h.p. Rex, in excellent order, and £6.—N. Patterson, Colnbrook, Bucks.

WANTED, Motor Cycle, 2½ h.p., going order, will give handsome gramophone and records, or push cycles.—46, High Road, Willesden Green, London.

WANTED, good motor cycle, tricar, or accessories, in exchange or part payment for new furniture, direct from works, valued wholesale.—Furniture Manufacturer, 3-5, New Norfolk Street, Shoreditch, London.

CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card.—Address, "The Cycle and Motor Trades' Review" Offices, Harp Alley, London, E.C.

WANTED.

TWIN. See Exchange.—26, Lansdowne Hill, West Norwood.

SIDECAR, for Zenith Bicar wanted. — No. 9,868, *The Motor Cycle* Offices, Coventry.

WANTED, Trailer, axle, and wheels, or frame, without body.—Waite, Burgh, Lincs.

WANTED, motor cycles, good makes; cash waiting; cheap.—Rey, 5, Heath Street, Hampstead.

WANTED, Old Accumulators; best price given.—Motories, 3, Arley Grove, Armley, Leeds.

WANTED, inch Whittle belt, 8ft. 6in.—J. Ballantyne Kellar, 45, Woodstock Road, Bristol.

WANTED, new 2½ h.p. Jap engine, with or without magneto.—85, Lower Addiscombe Road, Croydon.

WANTED, for Phœnix forecar attachment, head and side stay clips, cash. —H. Langlands, Clacton-on-Sea.

CHANGE Speed Gear, belt drive, to fit 3½ h.p. Brown engine, good and cheap.— Marsh, Cowper Street, Hove.

WANTED, acetylene lamp, horn, handlebar switch for motor cycle.—W. Beard, Cadley Hill, Burton-on-Trent.

MOTOR Cycle, 2½-3½ h.p., good condition, Kerry, Minerva, or other make, 24in. wheels, low.—13, Cadogan Road, Cromer.

TYRE Wanted, 2in. or 2¼in., wired on, 28in. wheel, 2in. rim; state rock-bottom price. —E. Cutting, King's Mill House, Stamford.

WANTED, urgently, second-hand motor cycles in exchange for new N.S.U.; good prices allowed.—Millard and Co., Trowbridge.

CHAIN Driven, three-speed and reverse; cheap; send rough sketch with measurements; also 10in. clutch.—1, Gas Street, Coventry.

WANTED, 6 h.p. twin J.A.P. engine, Minerva spring forks complete, Brooks spring seat.—Coxen, Fife Road, Kingston, Surrey.

WANTED, Forecarriage or Sidecar, to suit N.S.U., also two or four-speed gear and free engine; cheap for cash.—Geo. Pennock, 19, Rougier Street, York.

TWO 7-9 h.p. Peugeot twin engines, exchange 6 h.p. J. and C. twin engines, very flexible, higher power required. — 43, Southbrook Road, Lee, London.

WANTED, good motor cycle, single or twin, not less than 3½ h.p., magneto; cheap for cash, 1907-1908.—Hughes, 14, Lonsdale Road, Kilburn, N.W.

WANTED to purchase for cash, Triumphs, Quadrants, Minervas, Bats, Japs, Riley, and Lagonda tricars, or exchanges arranged for new models.—Wauchope's, 9, Shoe Lane, London, E.C.

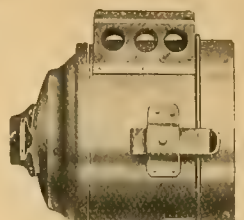
CIRCULAR Brass Tank wanted, as fitted to old motor tricycles; state number of partitions; must be undented and cheap. —G., 26, Cleveland Road, Barnes, S.W.

WANTED, 7 to 9 h.p. twin-cylinder motor cycle, with sidecar, must bear expert examination; give all particulars and price.—No. 9,864, *The Motor Cycle* Offices, Coventry.

WANTED, several motor cycles, any condition and power; also trailers and sidecars; write full particulars and lowest prices.—Arthur, 24, Myddleton Street, London, E.C.

LEST You Forget, we can supply Minervas and Moto-Reves on the finest terms for cash, credit, or exchange of anyone in England; write us and see.—Maude's, Powell Street, Halifax.

WANTED, H.F. Vulcaniser, model A., engine and dynamo for charging and lighting, exchange brass oil tank and pump, cost 35s.; horn and metallic tube, 41s. 6d.; jack, 9s. 6d.; pulley blocks, Eadie's, Weston, 39s. 6d.; stocks and dies, 23s. 6d.; brazing lamp, 52s. 6d.; watch, 63s.; watch, 25s.; telescope, 63s.; gun, 84s.; Bowden motor cycle brake, 12s. 6d.; black and brown leggings, 10s. 6d. pair, 21s.; guitar, 42s.; silver albert, 18s. 6d.; gent's cycle, £5.—No. 9,859, *The Motor Cycle* Offices, Coventry.



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Separate Generator
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The above side view shows that the **PREMIER SEARCHLIGHT** is of good depth from front to back—5½ inches, to be exact. Most of the copies are very shallow, and even those which also imitate our Mirror Lens Reflector fail, for this reason, to obtain the **magnificent beam of parallel rays** which is the very essence of the SEARCHLIGHT principle. BE SAFE and order a **PREMIER** from your Agent. It was the **FIRST** Car-style lamp and it remains the BEST. **Solid Brass,** riveted and brazed. Dissected front glass. Price **Includes** Generator with bracket and rubber tube.

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RICH DETACHABLE AIR TUBE.

24" × 2"	**13/6**	26" × 2¼"	**14/6**
24" × 2¼"	**14/-**	26" × 2½"	**15/6**
24" × 2½"	**15/-**	26" × 3"	**22/-**
26" × 2"	**14/-**	28" × 2"	**14/6**

Please write for Special List, with full prices and particulars of **all** *sizes, together with instructions and hints.*

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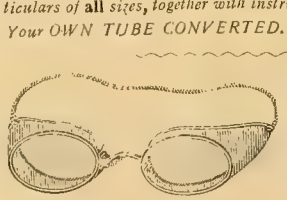

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Light and small.
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THE Best Silencer made is Aldingt patent Silent, from 10s. 6d.—Below.

THE Ball Bearing Ideal Fan will cool engine; 28s. 6d.—Below.

MY Footrests, reduced to 6s. 6d., ar luxury, spring rests, 17s. 6d.—Aldi ton, 59, Haydon's Park Road, Wimbledo

TANKS of all kinds made to order.—I gett, metal worker, 65, Turnmill Str London.

WHIPCORD Breeches, latest cut; 10s. 6 J. C. Savage, 119, Donegall Street, fast.

2½ h.p. Launch Motor, with carburett photo, 2 stamps; £4 10s.—11a, All Street, Brigg.

SHEDS for Motor Cycles, 45s.; portabl Stevens, 82a, Leighton Road, Kent Town, London.

WHIPCORD Cycling Breeches, latest c 10s. 6d.; write for patterns.—Bo tailor, Longton, Staffs.

JOB Line.—17 feet lengths ⅜in. leathe belting, reliable, 10s.; ditto, ½in., 1 Pollin, belt maker, Spalding.

CHEAP Motor Cycle Houses; catalo sent free.—Portable Building Compa Felsham Road, Putney, London.

MAYFAIR Accumulators, guaranteed a.h., 10s. 6d.; 20 a.h., 15s.; 40 a.h., 2 Fellows, Hertford Street, Mayfair.

FARRAR'S Quadrant Loop Frames for tical engines, 32s 6d. each, inclu front forks and handle-bars.

COW-VOICED Double Twist Horns, l size, terrific noise; usually 8s. 6d., price 5s. 10d.—Farrar.

FARRAR'S Motor Handle-bars, 20in. l 4s. 9d.; Lycett's patent Lightning st 4s. 9d. pair.

FARRAR'S Beautifully Enamelled guards, 2s. 6d. pair; massive pl horns, terrific noise, 3s. 9d.

FARRAR.—Send for my price list, po saved; sole agent Premier accu lators.—Farrar, Square Road, Halifax.

EVERYTHING Made in cycle tanks ex a fortune. Write for prices.—A. lips, 2, Strathnairn Street, Bermondsey

TRY the Rüsel Cast Iron Headed Va never need grinding; 3s. 6d., any —Broadhurst, 13, Stafford Street, Leice

YOUR New Mount is incomplete wit the Advance adjustable pulley; Advance Motor Mfg. Co., Ltd., Northamp

6 h.p. Bercley, twin, spares, splendid dition, £10, or offers; wanted, Whittle belt.—39, Harpenden Road, M Park.

TWO Powell and Hanmer gas lamps, brackets, also new Van Raden tr ler coil, all guaranteed.—Stevenson, L Heath, Coventry.

DRUID Exhaust Valves, do not pit, b nor break; price 4s. 6d.; send old v as pattern.—A. Drew, 74, Conybere St Birmingham.

ALLDAYS and Onions Bronzing He complete with Goodyear blow pipe, lows in sound condition, size of hearth 9in. by 2ft. 2in.; £2 10s.

LARGE Enamelling Stove, 6ft. by 3ft 2ft. 6in., as new; £2 10s.—Nipper, L dale, Clarendon Road, Weston-super-M

BORON Charging Battery, three spare zincs, guaranteed perfect, new ⅜in. four-ply chrome leather belt, m 10s. 6d., cost 17s. 6d.—Askham, Comme Road, Kirkstall.

READERS Having Photographic Appar for sale should advertise in "Ph graphy and Focus" Emporium, ½d. per w minimum 9d.—Address, "Photography Focus" Offices, 20, Tudor Street, London,

MOTOR and Cycle Agents should "The Cycle and Motor Trades' Revi Specimen copy post free on receipt of t card.—"The Cycle and Motor Trades' view" Offices, 15, Harp Alley, E.C.

FORECARRIAGE Attachment, fair co tion, band brakes, £2 10s.; Phœnix speed gear, belt drive, in 26in. wheel, £3 one 26in. by 2¼in. Gaulois cover, new, 7s. Barton, Raynor Road, Braintree.

THE MOTOR CYCLE

Vol. 6. No. 269. May 20, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

Ordering Spares by Wire.

A TRADE correspondent calls our attention to the much abused system of ordering spare parts by telegraph or letter. Some motor cyclists, it is pointed out, are in the habit of telegraphing or writing urgently for parts of motor cycles, and in cases of extreme urgency they will often wire on a Friday afternoon asking for certain parts to be despatched the same night. The writer says that his firm has endeavoured to accommodate clients by despatching the parts as requested, but in so doing finds that in many instances the motor cyclist is either careless or unscrupulous enough to think that a small debt is not worth troubling about, and in consequence the firm has between £200 and £300 in small items on its books which it is practically impossible to collect, and the cost of sending out invoices and letters asking for remittances has far exceeded any profit which might have been made on the parts originally. The result is that the directors of the firm we instance now insist that no goods shall be sent out until they are paid for, which, of course, will mean at least two days' delay, unless the customer is wise enough to send with the telegram ordering the parts a telegraphic remittance, which only costs threepence extra for small amounts. It must be remembered that motor cycles change hands frequently, and firms often receive communications ordering a part to be sent on by return from people of whom they know nothing, and, as we have pointed out above, in trying to accommodate customers one firm finds itself saddled with rather a large bad debt made up of small items. This is another instance of a few unscrupulous or careless persons causing inconvenience to the majority, much in the same way as careless or reckless drivers cause a great deal of inconvenience to others who are more considerate.

The very best plan to adopt in cases where spare parts are likely to be required in a hurry is to start a small deposit account with the makers, say £3; then if a small part or accessory is wanted in a hurry on tour, the rider sends off a wire, and the part will reach him next morning, and its cost deducted from the deposit in hand.

Seasonable Warning.

WE were witnesses last week of a rather serious accident to a motor cyclist, which once again shows the necessity for caution at cross roads, particularly those bifurcations where high walls or hedges are carried within a few feet of the corners. The accident referred to was, we think, one of those unfortunate collisions where real blame could not be attached to either parties concerned—a motor cyclist and an autocarist—but if there was any fault we fancy the motor cyclist was travelling too fast, taking into consideration the fact that he was approaching cross roads. New riders are constantly joining the ranks of motor cyclists, and many of them are not accustomed to the high speed of a powerful motor bicycle. The fastest machine is perfectly safe in the hands of a good and experienced rider, but novices should, above all, be extremely careful. With a straight road devoid of crossings and with no traffic in sight no objections can reasonably be raised against moderately high speeds, but on twisting roads, at crossings, and where other traffic may reasonably be *expected*, the rider should always have his machine so far under control that he can, if necessary, stop within a few yards with the aid of the brakes.

Erroneous Impressions Removed.

By DIOMED.

AT this time of the year the motor cyclist is busy tuning up his mount or fitting new accessories in preparation for finer weather. Similarly his push cycle brother takes his lifeless machine from its vaseline bath and prepares it for another series of pedal revolutions. Perhaps on his first ride the push cyclist is overtaken by a motor cyclist, who, with coat tails flying behind him, makes speedy work of the long gradient up which the poor pedaller is struggling.

Within his heart the toiler murmurs, "Lucky beggar! I wish I could get up this hill as easily as he does, but I wouldn't own one of those monsters for anything!" He doesn't go any deeper into the matter; he seems to prefer to keep one view.

Now, Mr. Push Cyclist, I would have a word with you. Did you ever seriously consider taking up motor cycling as a substitute for the old fashioned method? No. Why not, pray? What! couldn't afford to buy a motor bicycle, too difficult to manage, too noisy, too bumpy, too many accidents, too many breakdowns, too expensive to keep up, bad for the health! My dear friend, that's all humbug you're talking. Is it reasonable to suppose that 60,000 motor cyclists would endure the above allegations if they were true? I see you share the opinion of the man in the street, but, for your benefit, and for the benefit of those others in the same boat, I shall endeavour to show how entirely erroneous are the ideas, and at the same time point out the advantages motor cycling has over pedal cycling.

To deal first of all with the idea that a motor cycle is an expensive piece of machinery: It is true that a good motor bicycle, suitable for a learner, can be purchased second-hand for about £15—no more than the price of a high class pedal mount a few years ago. Some people dismiss from their mind the idea of purchasing a motor cycle, because they are of opinion that the first outlay will amount to £40 or £50. The writer commenced motor cycling on a £15 machine, and thoroughly enjoyed riding it.

Learning Quite Simple.

With regard to learning—well, there is simply no learning required. Anyone who has ridden an ordinary bicycle can ride a motor bicycle in two minutes. After a preliminary acquaintance with the various levers on the stand in the backyard, a run on the road can be undertaken, and after half-an-hour the new convert will feel more at home than ever he did on his old push bicycle.

That the average motor bicycle is noisy cannot be denied; but some makes have very efficient silencers, so it is really a question of choice. It may be mentioned that the noise of the exhaust is more audible to onlookers than to the rider of the machine.

The popular fallacy that the motor bicycle is a bumpy conveyance is no doubt due to the rapid explosions giving the semblance of a series of bumps or vibrations. In reality the explosions of the engine in no way affect the rider, and with spring forks, large tyres, and large saddle, travelling, even at very high speeds, is pleasurable—almost luxurious—on a good road. It is not going too far to state that the motor cycle is far more comfortable than its push brother.

It is absurd to suppose that a motor cycle is the frequent cause of accidents. Reference to statistics will prove that accidents *caused by* motor cycles are of very rare occurrence indeed, and infinitesimal when compared with those caused by other vehicles. A motor cycle is more amenable to control than any other road vehicle. Raising one lever and gently applying the brakes will bring a machine travelling at legal speed to a standstill in an incredibly short distance, so that the risk of an accident in that direction is considerably minimised. Of course, a stupid hen (and hens *are* stupid), a dog, or a nervous horse may cause hasty dismount, but in ninety-nine cases out of one hundred it will be found that the accident was not caused by the motor cycle, but the other party in the case, and accidents of this nature are just as liable to occur to the pedal cyclist as to the motor cyclist.

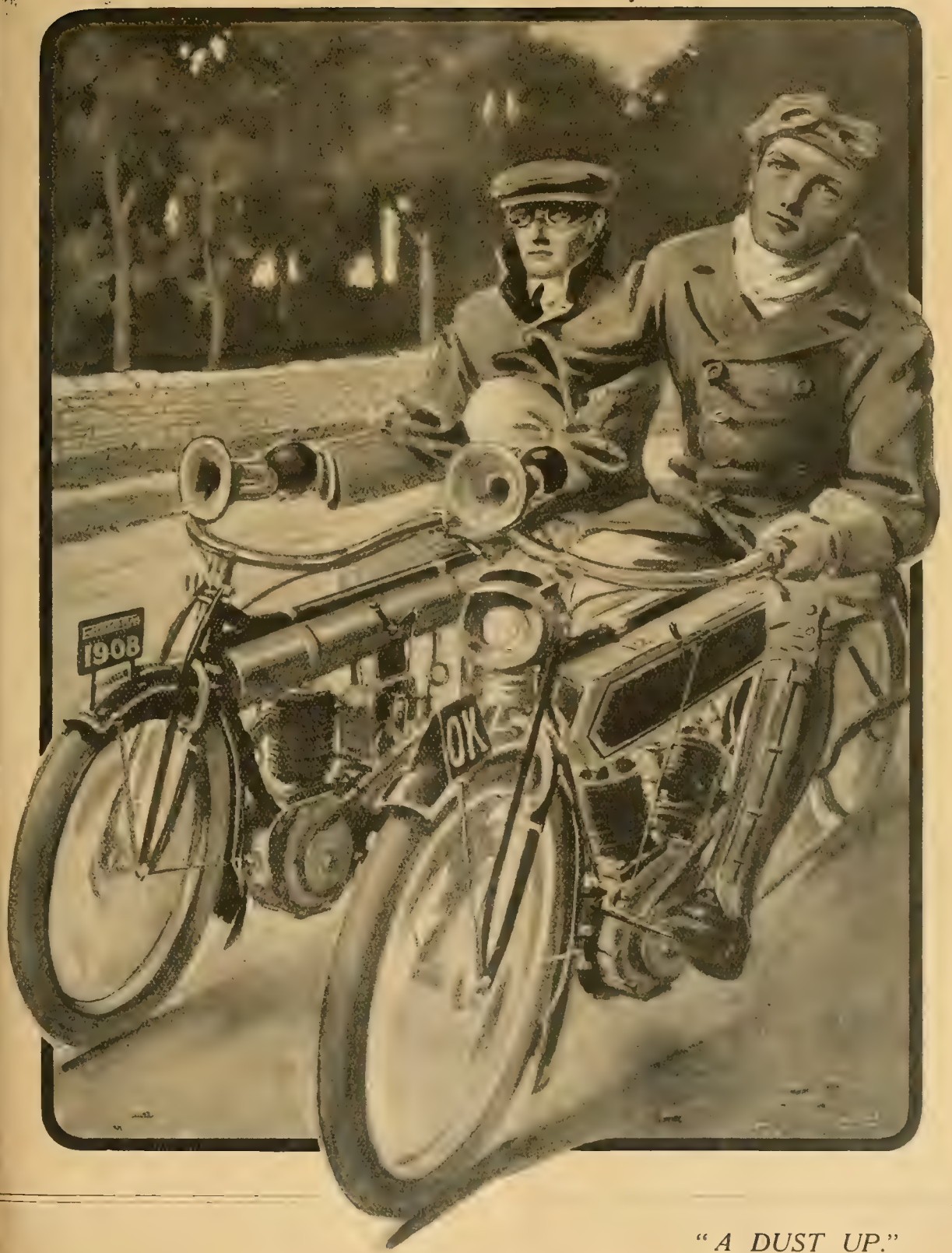
Motor Cycles Now Admittedly Reliable.

The once prevalent idea that a motor cycle is unreliable is, fortunately, dying out. It was true of all motor-propelled vehicles years ago, but experience teaches, and the motor cycle of to-day is as perfect a piece of engineering as the world may hope to see for some time. A rider may occasionally be seen dismounted with his machine on the stand, but it will generally be found to be due to some trifle which is put right in a couple of minutes. The reliability of the motor cycle is becoming phenomenal, as the numerous long distance trials throughout the country will testify.

With regard to running expenses, practically every user of present day machines agrees that a motor cycle is wonderfully economical in running cost. One hundred miles for 1s. 9d. or 2s. is regularly covered by riders of moderate powered machines.

Regarding the health point of view, there are hundreds of doctors who use motor cycles regularly which speaks for itself. Many have given it as their opinion that, far from having any deleterious effect, motor cycling improves the system. The rapid exhilarating motion refreshes and invigorates the whole body. The prevailing delusions having now been disposed of, it only remains to state some of the advantages which motor cycling possesses over all other forms of locomotion. To those living in towns it is an inestimable boon, as it enables them to reach the open country and the pure fresh air in a minimum of time with a maximum of ease. It enables all of us to go long distances, to penetrate into all corners of our tight little island. It enables us to see a large amount of beautiful Britain which we would otherwise be unable to see. Rudyard Kipling has said, "*That* is the real joy of motoring, the exploration of this amazing England. It is a land full of stupefying marvels and mysteries."

We are advised that the price of the Osborne four speed pulley has been considerably reduced. The makers, Osborne Bros., are also introducing a new three-speed pulley and free engine, which will be known as the Popular. Further particulars can be obtained from Princess Works, Lincoln.



"A DUST UP."

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 338.*)

OPENING PETROL CANS.

209. The rim on the bottom of another can is always available and certain, though it is not good for the can.

PLIERS.

210. A good tool kit contains three pairs of pliers—medium-sized gas, small flat-nosed, and Taylor's patent nutgrips.

POCKET TOOLS.

211. It is a sore temptation always to carry a small paraffin can, adjustable spanner, and screwdriver in the pockets. In this way many good coats are ruined by budding motor cyclists. Many excellent little pocket cases containing these and other handy essentials of first quality, and in leather cases, are on the market.

RE-STARTING A MOTOR BICYCLE UP HILL.

212. A weakly rider with a single-geared machine and no clutch should return to the bottom and make a fresh start, or else find a side road descending to enter the hill at an angle. A strong rider should make the most careful preparations, flooding carburetter, injecting a little petrol into the cylinders, and then give a good push. One strong, masterful heave is worth yards of weak, half-hearted pushing. Do not mount the instant the engine fires, if the grade is steep, but allow it a yard or so to pick up speed.

RIDING POSITION.

213. The most comfortable and safest riding position is afforded by setting the saddle low down amidships, fitting footrests in a natural position to match, and bending over the ends of the handle-bars at an angle, so that if produced they would strike the ground a few feet to the rear of the machine. The so-called "racing" position renders one less master of the machine on grease, looks ungraceful, and removes necessary weight from the front wheel.

SIDECARS.

214. The rigid sidecar is the cheapest pattern. Its disadvantages are that it is not very comfortable to drive at any speed over twenty-five miles an hour, it is not readily detached, and much care is required in turning corners with it until expert. Its advantages are that it is perfectly immune from sideslip.

The Montgomery sidecar can be attached or detached at any moment in a couple of minutes, and is very pleasant to drive at all speeds. The Castor wheel sidecar is also very comfortable to drive. The rigid sidecar alone of these is entirely immune from sideslip, but the other two are perfectly steady if an armoured tread is used on the bicycle's rear tyre.

It is folly to fit a sidecar to a bicycle that is poorly braked. If the sidecar wheel be braked, the steering will be interfered with. The sidecar is preferably fitted to the left hand side of the machine, as ladies dislike being too close to approaching traffic. Fitting it on the right hand has, however, one great advantage—it is easier to mount the bicycle from the left side than the right.

A side lamp is essential, and a tail lamp advisable.

SIDE-SLIP.

215. A sensible confident driver will sideslip no more on two wheels than on four.

A quadcar slips exactly like a car, and if a driver is troubled by it, he should use armoured tyres on the rear wheels.

A tricar with a smooth rear tyre does not sideslip, but waggles gently and will sometimes fail to answer the helm round a sharp corner when the road is greasy. A tricar with an armoured rear tyre is as steady as a rock.

A rigid sidecar does not sideslip.

A flexible or castor sidecar can skid badly, but will not skid at all if provided with an armoured tread on the rear tyre of the bicycle.

A trailer is dangerous on greasy roads.

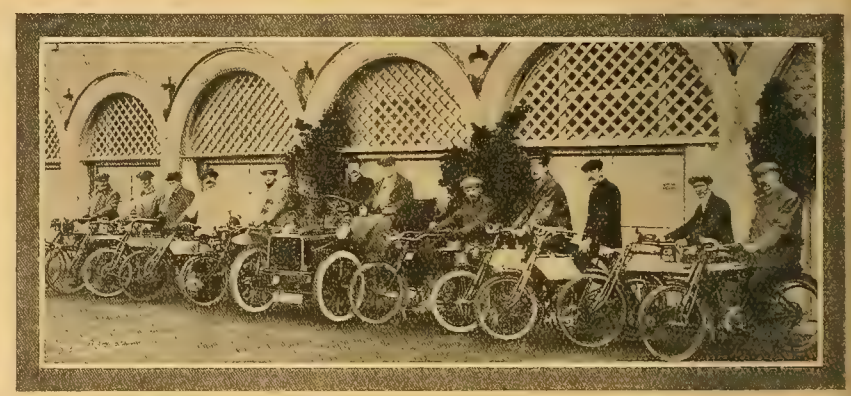
The silencer must be kept clear from burnt oil, otherwise heavy back pressure will be put upon the engine.

SPRINGS FOR PASSENGER MACHINES.

217. It is a great mistake to order a fore or sidecar without specifying the weight of the usual passenger. The makers know what strength of spring is best suited to particular loads.

TESTING PLATINUM.

218. Platinum being a precious metal, price considerations have caused people to market contact fitments equipped with rivets of other metals, which soon burn and pit, and lead to misfiring and loss of power. Any jeweller will test a suspected contact, or it may be tested at home by placing a small filing of the suspected metal in a test tube with a few drops of nitric acid, and heating it over a Bunsen burner, when true platinum will be found to stand the heat, but imitations will dissolve and dye the acid green.



Some members of the motor section of the Brighton Cyclists' Club assembled for the run to Billingshurst. The hon. sec., Mr. F. C. Wiffen, is fourth from the left.

A motor bicycle depends for safety rather on the pluck and personality of the driver than on the nature of the machine and roads. Anyone can hold up the modern belt driver if he makes up his mind to it. Difficult machines to handle over grease are those with chain drive, high frames, and high gears. A non-skid band fitted with either rubber or steel studs on the rear tyre is less liable to skid.

SILENCERS.

216. It is a great mistake to have too good a silencer. A motor bicycle catches the eye far less than a car, and a silent motor bicycle is likely to be concerned in accidents. If a really good silencer is fitted, the horn will have to be used *ad nauseam*.

A cut-out should be fitted for the sake of climbing exceptional hills, but should never be opened in the neighbourhood of traffic or houses. If a very quiet silencer is wanted for passenger work, the Sharp silencers secured highest marks (over eighty per cent.) in the only trial ever held for motor cycle silencers.

TOOLS AND HOW TO CARRY THEM.

219. The best outfit for all motorists is a roll-up looped strip, with pockets for oddments in the end. The touring kit should include:

One 8in. wrench.
One small adjustable spanner.
Special open-ended wrenches for all inaccessible nuts.
Trembler coil or magneto spanner, if either is used.
Small pair of flat-nosed pliers.
Short, strong screwdriver.
Valve spring remover.
Half-round file with cover.
Contact file and case.
Tyre repair kit. Inflator. Oilcan.
Paraffin or petrol can.
Copper wire, thick and thin.
Sparking plug, valve cap, and compression tap washers.
Two spare valves complete.
Three spare plugs complete.
Belt punch or drill.
Two spare belt fasteners.
Fine wire for clearing carburetter jet.
Sundry nuts and bolts.
One or two spare nipples for Bowden wires if used.

TOURING MACHINES: THE WEIGHT QUESTION.

THERE has appeared recently in the columns of *The Motor Cycle* a good deal of discussion as to the various merits of the lightweight motor bicycle which may possibly lead some to think hat the day of heavy twins and singles, except from purely sporting point of view, is beginning to decline. Advocates of lightweight motor bicycles contend, nd rightly too, that a low powered, light machine is andier, cheaper to run, will travel quite fast enough or most riders' requirements, and will climb most hills ith light pedal assistance, and they ask, "What more o you want?"

Weight and Comfort.

Leaving out the question of speed, my answer to this, nd I think most old motor cyclists will agree, is that he lightweight as a touring motor cycle lacks the omfort of the heavier machine. After a good trial n one of the latest lightweights (a miniature twin-ylinder) I am bound to confess that ease of control nd smooth running of the engine leave little to be esired, and its hill-climbing powers were marvellous; ut the road vibration, especially over rough patches, as particularly noticeable when compared with my wn heavier mount. No doubt building a machine ith a longer frame, longer handle-bars, and fixing a ig saddle, footboards, and larger tyres would over-ome this to a great extent, but it would then be sacri-cing its claim to be called a lightweight, and it is ist these things that help to absorb vibration and go make the heavier machine more comfortable.

My own mount is fitted with very comfortable foot-boards, big saddle, long wheelbase, and very long handle-bars, and I have never felt the slightest fatigue after being in the saddle all day; but I venture to say I should not feel as fresh after riding a lightweight for the same time. I found there was no comparison with the light machine when riding over the same roads on my own heavy twin. I therefore cannot agree with Mr. Hooydonk's remarks in his letter [3196] that "a lightweight machine is to-day more comfortable than a powerful twin."

Ease of Control.

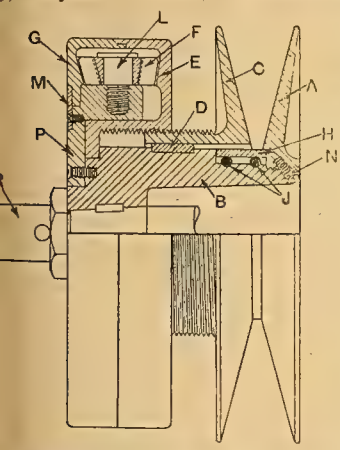
With regard to the ease of control, which is another point the lightweight champions emphasise, I have never found the slightest difficulty in controlling my machine in traffic, one reason perhaps being that I employ a lower gear than is generally thought indispensable on a twin, and can run at six miles an hour with both cylinders firing; this with magneto ignition.

One particular point I consider to be dead against the popularity of the lightweight is the round belt transmission and jockey pulley, but as this will be improved upon I will say nothing further with regard to it.

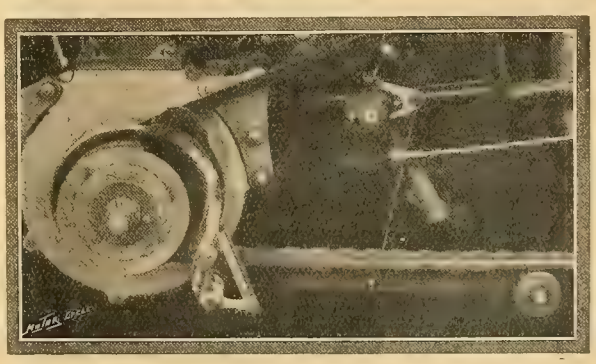
The lightweight has undoubtedly many advantages, and, as pointed out in your columns recently, will do excellent work in bringing fresh recruits to the pastime; but for those who have had some experience of motor cycling I think it will be a very long time before the lightweight supersedes the heavier twins and singles as all-round touring machines. C. E. T.

ANOTHER VARIABLE SPEED PULLEY.

THE number of variable speed pulleys now on the market is becoming quite remarkable. An ingenious device of this type has lately been introduced by Messrs. Defiance Motors, Ltd., 9, Laystall Street, Clerkenwell Road, E.C. The chief advantage of this gear is that it can be changed with ease, is easily applied, and simply constructed. Referring to the line illustration in section, it will be seen that the main boss B is bored to fit the pulley shaft of any engine. The fixed flange A is screwed up against a shoulder and held in place by a grub screw N. The movable flange C is bored to slide laterally on the main oss, but is prevented from turning by the feather D; is also threaded externally, and a bevel wheel E is reaeded internally to screw into it. This bevel wheel mounted on the main boss in such a manner that it an rotate thereon, but cannot move laterally, and a econd bevel G is similarly mounted. The bevel pinions F are mounted on studs L, which are carried by the disc P. This disc is fastened to the main boss, and the pinions are free to rotate on the studs, and are always in mesh with both bevel wheels. Two pedal brakes are provided for applying to the outer surface of the bevel wheels. When one pedal brake is pressed the rotation of one of the bevels is arrested, with the result that the pulley expands. If pressure is taken off the pedal the flange remains where it is. If pressure is put on the other pedal and the rotation of the other bevel is arrested, the flange contracts. When the low gear is being applied the belt tension is kept up by means of a jockey pulley. When the flange C is fully expanded the ring J which runs on ball bearings is exposed, and on it the belt runs.

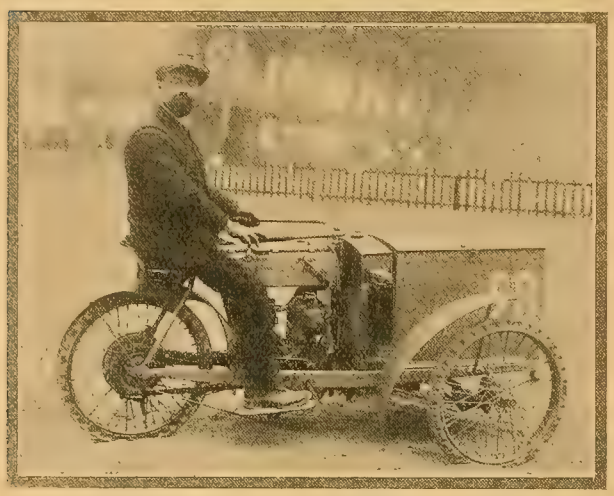


Part sectional drawing of the Defiance variable speed and free engine pulley.


The Defiance Variable Pulley, showing jockey pulley and two pedal brakes.

Tricars for Industrial Purposes.

INCLUDED in the French Industrial Vehicle Trials which are now being held (full particulars of which are published in the current issue of *Motor Traction*) are two of the well-known Mototri-Contal machines. Our illustration shows one of these tricars with its French driver at the wheel. Both



A Mototri-Contal in the French Industrial Vehicle Trials.

machines are fitted with single-cylinder engines, chain transmission, and channel steel frames. The box in front is constructed to carry a weight of 112 lbs., the water tank being situated at the rear of this box with the radiators projecting one at each side. Both machines are fitted with Ducasble solid tyres. The daily average journey which these vehicles are accomplishing in the trials is about eighty-eight miles. The competition closes on the 31st inst.

The B. F. Goodrich Co., 7, Snow Hill, E.C., the makers of the Goodrich rubber studded tyre, regret there has been delay in delivering tyres and retreading covers. They are now in a position to deliver and execute orders for retreading any cover promptly.

The Service Company, Ltd., of 292, High Holborn who are agents for the Rex motor cycles, inform us that these machines are selling very freely in the London district, the lightweight in particular being very much in demand. Large numbers of this make of motor cycle were sold just before the Easter holidays, and the reports received from their owners are most satisfactory

We have received a sample of tyre filling compound from J. E. Savage, 119, Donegall Street, Belfast. The compound is of a jelly-like substance. To fill the air tube the composition is merely heated, when it becomes liquid, and can be pumped into the air tube with an ordinary two-way pump. For motor cycles it does not require to be pumped to too great a pressure, as this destroys the resiliency of the tyre. It is claimed that anyone can fill his own air tubes, and once filled the tyre is ready for riding in twenty-four hours. To fill a motor cycle tyre 2in. in diameter, 4 lbs. of the composition are required.

Twomilesaminute,
Seehowwefly!
Swiftasameteor
Streakingthesky.

Whatisthatblur?
Onlythetrees.
Lookatthemwave,
Mywhatabreeze!

Ahonkandarush,
Aflashandasmell—
Whatdidwehit?
Didsomebodyyell?

Ajarandascream—
Itlookedlikeahorse.
Notellingnow,
Keeptothecourse.

Leonard H. Robins in "Jersey Jingles."

Weighing one of the competitors in the M.C.C. Members' Hill-climbing competition at Sharpenhoe on the 2nd inst.

A group of competitors at the foot of the hill. The two riders in the foreground are W. A. Sale (3½ h.p. Rex) and Percy H. Trotman (3½ h.p. Triumph).

Being the opinions of medical men who are actual users of motor bicycles or tricars.

(*Continued from page 379.*)

. E. St. L. Finney, J.P.

I use an 8 h.p. De Dion tonneau car or my medical work. I have also got Minerva motor bicycle. I consider otor cycling a most healthy pastime. do not use a motor cycle for profes- onal work at any time, as I consider he motor car is better suited for town ork.

C. Lapage, M.D.

(1.) Since I used a motor cycle I ave been free from muscular rheuma- ism, and I attribute this to the vibra- ion, which has a somewhat similar ffect to that of massage. (2.) I have veraged 3,000 miles per annum in isiting patients, and also in tours for leasure. (3.) The cost of motor cycling s very much cheaper than that of eeping horses or of running a car. I stimate it at one-third. Though I ow have a car I use the cycle in pre- erence in fine weather. (4.) A light- veight motor cycle with magneto and -belt and variable gear if the country e hilly.

.B., B.C.

The alleged evil results to health rom motor cycling are mysterious ervous diseases from vibration affect- ng the spinal cord and dilatation of he heart from severe muscular exertion n starting or helping up stiff gradients. The first must be very rare, and, like he second, must be due to the unskil- ul use of an unsuitable machine. A otor cycle in good order, geared to uit the district, ridden intelligently, will improve the health of the rider. Racing or scorching on the average ountry road is prejudicial to the health by necessitating incessant watch for possible dangers and causing exhaustion instead of gentle exhilaration

R. A. Johnston.

While considering motor cycling a very healthy pastime, it is not as such that it appeals to me, but as a pleasant, speedy, and reliable means of doing my daily rounds in outlying country districts, for which I use it irrespec- tive of weather. Especially in urgent and night cases is the convenience of the motor cycle noticeable. A good 3½ h.p. with magneto ignition is my idea of a suitable machine for a medical man. With intelligent care it is always ready for immediate use, while its upkeep will not be one-third that of even one horse and trap with which one could not do anything like the same amount of country work.

E. B. Thamsen (Denmark).

Having used a motor cycle since spring, 1903, I may say at once that I have always found it a really healthy and exhilarating pastime in winter as in summer. A motor cycle is invalu- able for a doctor on busy days and in urgent cases, and it is by far cheaper than any other method of locomotion, push-cycle excepted. As to the most suitable type of motor cycle for doctors' use, I may say at once that owing to Danish legislation, and to the roads in this region of the kingdom, I do not think a tricar would be practical, and I am really satisfied with my present mount, a 3½ h.p. single-cylinder N.S.U. with magneto, spring fork, two-speed gear, etc., which for fully three years has done its work almost every day in the year, and proved itself to be an ex- tremely reliable and efficient machine (two-speed gear since 1906).

C. H. S. Vinter, M.R.C.S. Eng., L.R.C.P. Lond. B.A. Cantab.

My present mount is a 1906 3½ h.p. Quadrant fitted with 1908 Roc clutch and two-speed gear, and Brown and Barlow carburetter with handle-bar control. I use machine to assist in my practice, particularly for night work, also on holiday. Last summer I took a friend in my trailer through Brittany, but found the necessity for a two-speed

Dr. C. H. S. Vinter.

gear. Consider it most valuable from a health point of view. With really effective spring forks (such as Quad- rant), footrests, and a Brooks B100 saddle, there is no tired feeling after a long run. Other essentials to my mind are 2¼in. tyres and separate stand and luggage carrier.

J. Ellis Crisp, M.R.C.S. Eng., L.S.A. Lond

(1.) Cures dyspepsia and defers old age. Think it would be better for the health and brains of every man not an invalid or an imbecile to get a motor cycle if he can afford it. (2.) Provided good roads and good weather, not to be expressed in words. (3.) As cheap, comparatively speaking, as a club man's payment for medical attendance. (4.) Depends on locality. Personally, I prefer 3½ h.p. Have dropped £15 on a two-speed gear. Waiting till I see a satisfactory one on a friend's machine, when may invest again.

B. Pope Bartleet, M.R.C.S.

(1.) For five and a half years I have done all my work on a motor cycle, rid- ing day and night, all weathers (aver- age about 120 miles a week), and have enjoyed excellent health. I should, however, advise warm clothing, especi- ally for night work. (2.) With a reasonable amount of attention a motor cycle is convenient, speedy, and reli- able, and always ready at a moment's notice. (3.) I used two horses for fif- teen years, and I consider the upkeep of two motor cycles about equal to that of one horse. (4.) Single-cylinder 3 h.p., light and strong, and an easy starter, Palmer covers, and protection from rain and mud where possible. I have used four different machines, but the 1903 Rex, which is still going well, I consider the most reliable.

D. J. S. (Ireland).

I consider motor cycling to be a very healthy and exhilarating exercise. Until one gets accustomed to it, and expert in the management of the machine, the strain resulting from hav- ing to be constantly alert and wide- awake is tiring, and may be harmful. I have been using motor bicycles in my professional work for the past six years, and I would not be without one—until I can afford a good car—as apart from the pleasure it gives, it saves a lot of time in a long-extending country practice, and the expense, beyond the initial cost of the machine, is trifling, and bar Shanks's mare and push bicycle, much cheaper than any other form of locomotion. The motor bicycle is, however, essentially a fine weather and daylight machine. My ideal motor bicycle is a 3½ h.p. single-cylinder machine, with low and well-sprung frame, magneto ignition, two-speed gear or adjustable pulley, and rubber and canvas belt.

OCCASIONAL COMMENTS.

By "IXION."

Rubber Belts.

I want to know if any rider has ever suffered from a mischance that befell me a week or two ago. I was out with a brand-new rubber belt, on new pulleys of correct angle, and a heavy storm came on. As soon as the belt got wet, I had a free engine as soon as I struck a hill. No matter how I mopped the belt and the pulleys, the belt slipped on the engine pulley as badly as if it held a free-wheel both ways concealed in its inside. I do not often ride with rubber belts, but this has never befallen me before, and I shall be glad to learn from a rider of greater experience with them how such an awkward mischance is to be dealt with, and what is the explanation of it.

Fasteners for the same.

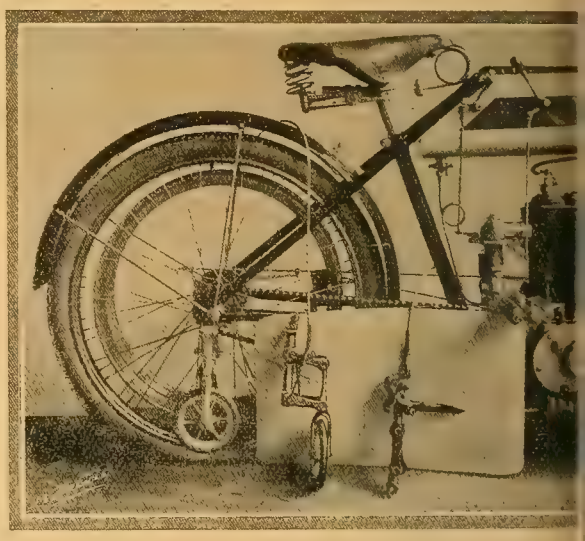
Many riders have told me their one complaint against rubber belts is that when the days of shortening come the fixing of the fastener is more difficult than the same job applied to a leather belt, and the difficulty of this is almost as disagreeable as the dirtiness of the same operation with leather. These riders will no doubt be pleased to hear that Mr. Lycett has brought out a new rubber belt fitted with his patented eyeleted system of hook fasteners, which have been found such a boon on the leather variety. Mr. Lycett's belt contains other features of interest. The fabric core is of the very identical "airless cord" of which the famous Palmer cord tyres are made, a layer of rubber intervening between the layers of cord to prevent chafing by friction. In addition, the belt is grooved on both top and bottom, and may therefore attain a higher degree of flexibility than standard patterns. I say "may" advisedly, because stiff as rubber belts appear to be when bought out of stock, they soon lose their rigidity in actual work upon the road. (Lest there should seem to be a connection between this paragraph and the last, relating to slip of a wet rubber belt, I may add the belt which held me up was not a Lycett.)

A Suggestion in Quadcars.

I think we are all a little disappointed at the very limited vogue of the several patterns of light four-wheeled motor cycles that have been brought out, and I am convinced that the specification of these vehicles and the high price a good specification necessitates have been militating against them. Let some maker produce a strong, simple chassis with few refinements, keep the price as low as he can, and see what sort of a demand rewards him. We have to remember that in parts of America where the roads permit, vehicles of this sort have a great vogue, and that amongst persons not originally very promising as motor buyers. A host of refinements—governors, magnetos, gauges, and so forth—wreck the prospects of such a machine before it is marketed at all. However charming they may make it to handle, they lift its price to within £10 of that charged for a regular car, and the purchaser springs another tenner and gets his side by side bucket seats, and so on. The sort of vehicle I mean would be destitute of fal-lals of any sort, and consist of two axles, a "deck" or "buck-board" platform carrying a seat which depended for its comfort more on accuracy of dimensioning tha luxury of upholstering, a good simple engine, ca buretter and ignition, simple brakes, simple two-spee gear, simple transmission, and so forth. Such quadricycle should be produced in quantities for abo £70, and would have a great sale if its meri were once proved. It is no use throwing anythin on a crowded market, and then leaving two or thre private customers to advertise it. There is at prese a huge class of motorists desiring passenger machine and unwilling to expend more than £75 on a moun Some of them buy second-hand tricars, some b second-hand single cylinder voiturettes, and some them abstain. This class is likely to exist pe manently, and the light up-to-date car of standa design will never fall in price sufficiently to suit then They are not catered for at the moment, and they a waiting with their purses in their hands.

The Hill-climb of the Year.

Nothing in my motor cycling memories has given n more joy than to learn that the A.C.U., in conjunctio with the Newcastle and District Motor Cycle Club, promoting an open hill-climb at Sutton Bank on M 30th. It will be the function of the year witho



The latest pattern Jack-no-Skid as supplied by Horner and Co., Store St. Tottenham Court Road. It will be noticed that this is a very much neate article than any previous pattern.

doubt, and the proviso that the winner in each cla will be the machine "that travels farthest up the hill is a wise one, though the results will be decepti unless the ratio of gear is stated on the entry form a checked before the start, as few machines will be fitt with the manufacturers' standard gear. One adva tage of the hill is that from the foot the heads of t riders are visible above a low turf parapet as they s mount the concluding pitch, and a very fair notion comparative pace can be obtained thence. I a sorry to see that the maximum weight of twins wi 76 mm. bore is set at 200 lbs. One or two winni machines of last year especially suited to this hill a debarred by this proviso.

QUESTION & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street. E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Leakage at Inlet Valve Dome.

I am troubled by a leakage through seating of inlet valve of my N.S.U. machine, not through valve which is quite tight, but through seating of valve casting in cylinder head. Kindly say how I can cure it.—SN 161.

You might try fitting a new copper and sbestos washer, as soft as possible, and f this does not cure the leakage, have asting examined; it may be distorted y heat, or there may be a piece chipped ut of the casting, so preventing a roper joint.

Registering New Machine and Suggested Tour.

(1.) Is it correct that I may register my tricar at any council office, therefore by applying to an out of the way place I should get a small distinguishing number? If so, would you kindly suggest a place where there are very few motors? (2.) I intend going for a seven days' tour in June, and should be pleased if you would suggest one. I am quite an inexperienced driver at present, so should like an easy unfrequented route.—H.S., Catford.

1.) Yes, you may register a new motor t any County Council offices. You ight try County Sligo, Ireland; County Roscommon, Ireland; or the hetland Islands. (2.) If you care to ap out a tour roughly we will tell you f it will be suitable if you give us particulars as to the horse-power of your achine, and how far you care to ride aily.

Route to Devonshire and Stoppage of Petrol Supply.

(1.) Kindly inform me the best route to Exeter, and on to Kingsbridge, in Devonshire? (2.) Also please say cause of 1906 3 h.p. N.S.U. machine, which previously ran well with fixed air half open and throttle tube air regulator half open, suddenly refusing to go unless fixed air is entirely shut and adjustable air almost shut? —F.A.R., Brixton.

1.) Your best route would be Basingtoke, Salisbury, Shaftesbury, Honiton, Exeter, Chudleigh, Newton Abbot, Totnes, and Kingsbridge. (2.) The trouble is probably due to a stoppage in the carburetter impeding the low of petrol.

Restoring "Life" to an Engine.

Can you tell me how to remedy the following faults in my 4 h.p. magneto Antoine, Fit-all two-speed gear: Knocking while picking up speed. Does not respond to throttle up-hill. Racing on low gear with full gas, and stopping on low gear with half gas. Unable to do more than twenty-five miles per hour on level (4½ to 1 gear). Although I can start at a walking pace, and the engine fires regularly, it is not responsive to levers till well under way. Would raising the level of petrol in jet cure above faults? If so, how shall I set about doing it?—J.F.M., Birkenhead.

From the symptoms described in your letter, the engine may be suffering from

Mr. B. H. Davies, on arrival at a friend's house after a "breakfast" run of 75 miles, covered by 8 a.m., without a stop. The machine is a 3½ h.p. Triumph.

two faults. Firstly, it may be very foul inside, and requires to be cleaned of all carbon deposit. Secondly, the carburetter may not be receiving sufficient air at high speeds, and not enough petrol at low speeds. Raising the level of the petrol might cure the trouble. This is done by slightly lowering the weight on the needle valve. If you are unable to effect an improvement fit a new fibre ring.

Adjustment of Contact Breaker.

Please tell me how I can cure misfiring on my 3½ h.p. Rex motor bicycle? The compression is excellent and valve springs good, the mixture correct, and the accumulators charged. After starting and getting up a speed of about 15 m.p.h. the missing commences, but disappears on resuming a slower rate. There is plenty of petrol and oil.—S.H., Herefordshire.

It is almost certain that a half turn of the platinum screw on the contact breaker to the right will cure the misfiring on your machine at higher speeds than 15 m.p.h. Other causes of irregular running are, wires chafed through the insulation, platinum points pitted, cracked porcelain of plug, and incorrect carburetter adjustment.

A Novice's Difficulty in Starting.

I find a difficulty in starting my new magneto Motosacoche when on the road. I obtained it recently, and have had it going a few times on the stand, but it refuses to start on the road. I have worked it in exactly the same way on the road as I worked on the stand, and commence as follows: Turn on petrol, flood the carburetter, inject a little paraffin into the compression cock, close the latter and lift the exhaust, pull the throttle wide open and then commence to pedal. When nicely going I drop the exhaust and fully advance the spark, and if on the stand it starts. On the road I've tried going down a slight incline at a fair speed with spark fully advanced. Would you advise injecting a small quantity of petrol into the cylinder?—H.B.

The best position of the spark lever of a magneto has considerable influence on the ease of starting; the usual position of this is just short of full advance, also care must be taken that the sparking plug points have a gap not greater than 1-64in. Yes, you might try a little petrol injected into cylinder and see if this makes any improvement. Also be careful to see that the air is closed before starting, and then open the lever when under way. You do not state if the engine refuses to fire while turning, or if the compression of the engine causes the belt to slip over the pulley. If the latter is the case, you must adjust the belt tighter.

READERS' REPLIES.

Magneto Refuses to Spark.

Having had similar trouble to that described by "Rev. H.N." in *The Motor Cycle* for May 6th, page 369, I would like to recommend the fitting of Albo Luthi sparking plugs, careful cleaning and adjusting of the contact breaker so that the points open fully 1-16in., opening and closing like the tapping of a small hammer, and, most important of all, tightening the actuating rod of the Roc clutch. The clutch pedal must be operated very gently, *i.e.*, the machine should begin to move when operating lever is half depressed, and get under way before pushing pedal home. Make sure that magneto is properly timed. The cog on engine might have slightly altered its position with a jar or knock by accident. We had quite a circus with our 1907 5½ h.p. Rex de Luxe until the details mentioned were attended to. Now it is one of the finest machines on the road.—HAD SOME.

Valve Cap Joints.

With respect to the letter of "W.S.S." (page 369 of *The Motor Cycle*), who has difficulty in getting his valve caps gas-tight, he will find that this is due to the flanges on the caps not being wide enough. This has been remedied on the later models, and caps with wider flanges can be procured from the Minerva Co.—T. W. WORRALL.

IMPORTANT.

Our readers are reminded that all letters requiring an answer must be accompanied by a stamped and addressed envelope. These queries are never published unless they contain matter which is of general interest. No exceptions are made to the above rule except in the case of some foreign and colonial correspondents, who cannot obtain international reply coupons.

A meet of the growing Hull and East Riding Auto Cycle Club. We commend the photographer on the novel method of taking the picture.

THE TOUR DE FRANCE.

MOTOR CYCLE AND VOITURETTE RELIABILITY TRIALS.

(*From our Paris Correspondent.*)

ON Monday morning, May 11th, the Tour de France organised by the Auto Cycle Club de France for motor cycles and voiturettes commenced under ideal weather conditions. Although the hour of starting (7 a.m.) was early, the majority of the competitors and a host of friends were well on the scene some time beforehand, but this was probably due to the glorious morning and the hopes of a splendid run by the entrants.

The Weighing In.

Saturday morning, May 9th, witnessed the weighing-in of the machines and the official sealing and stamping of the various parts at the Levallois works of Messrs. Bayard-Clément, and it was interesting to note the irregularity of the arrival of the competitors as compared with similar affairs in England. It struck me that French motor cyclists are devoid of that comradeship and fraternal feeling which exists in English motor cycle circles. The competitors dribbled along in ones and twos, had their machines stamped and sealed, and went off again, as if the whole proceeding was an everyday occurrence. Frenchmen are always loth to give information, especially to pressmen, as they have a dread that they should be called upon to pay for it, and this year's Tour de France was no exception to the rule.

The machines on the whole were all of serviceable build, mostly with low frames and medium length handle-bars. All except the two Werners (Nos. 11 and 13) were fitted with Longuemare carburetters, the Werners having their own make of carburetter attached. The machines were divided into two classes, Class I. being for motor cycles with engines having a quarter litre capacity (or 250 cubic centimetres), and Class II. for motor cycles having a cylinder capacity of 210 cubic centimetres. Tricars came under Class III., and these machines had a maximum cylinder capacity of half a litre (500 cubic centimetres).

The parts that were stamped were the cylinder, the crank case, the cylinder head, the carburetter, the forks, and hubs, and to have changed any of these parts during the tour would have entailed disqualification.

The Entries.

The following motor bicycles and tricars were on the 9th inst. officially entered as starters:

Class I.—No. 1 (Quentin), No. 3 (Lurquin-Coudert), No. 4 (Peugeot), No. 6 (Lurquin-Coudert), and No. 7 (Peugeot).

Class II.—No. 10 (Alcyon), No. 11 (Werner), No. 12 (Griffon), and No. 13 (Werner).

Class III. (tricars).—No. 16 (Du Furan), No. 17 (Souriau), No. 19 (Bérujeau), and No. 20 (Du

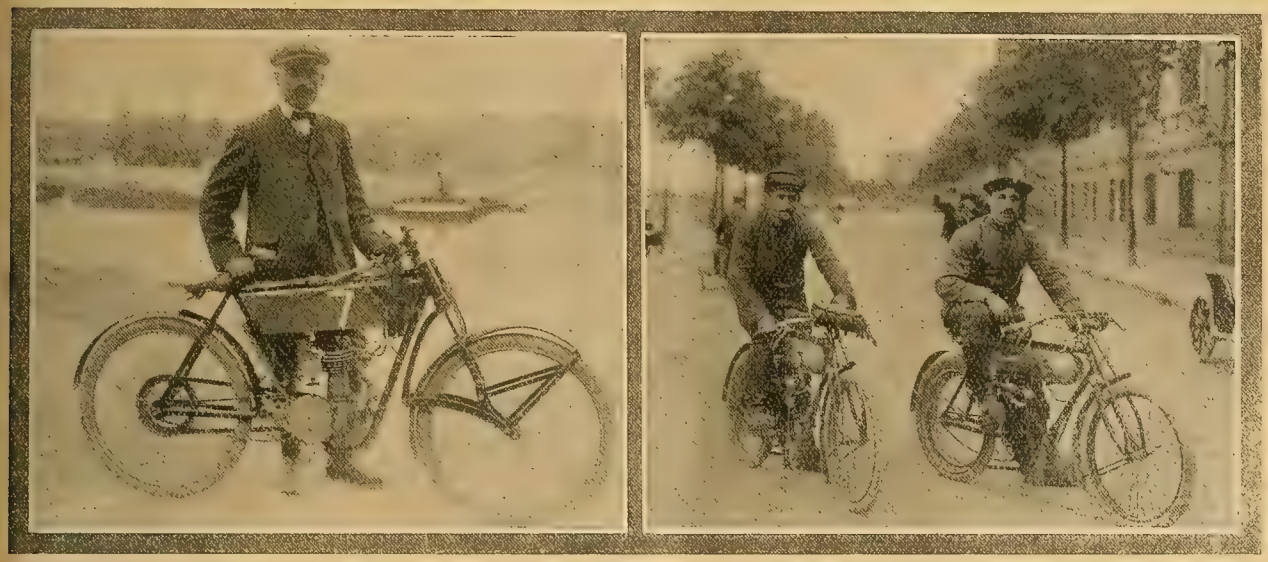
The Tour de France.—

Furan. All these machines made their appearance on Monday morning in full travelling order.

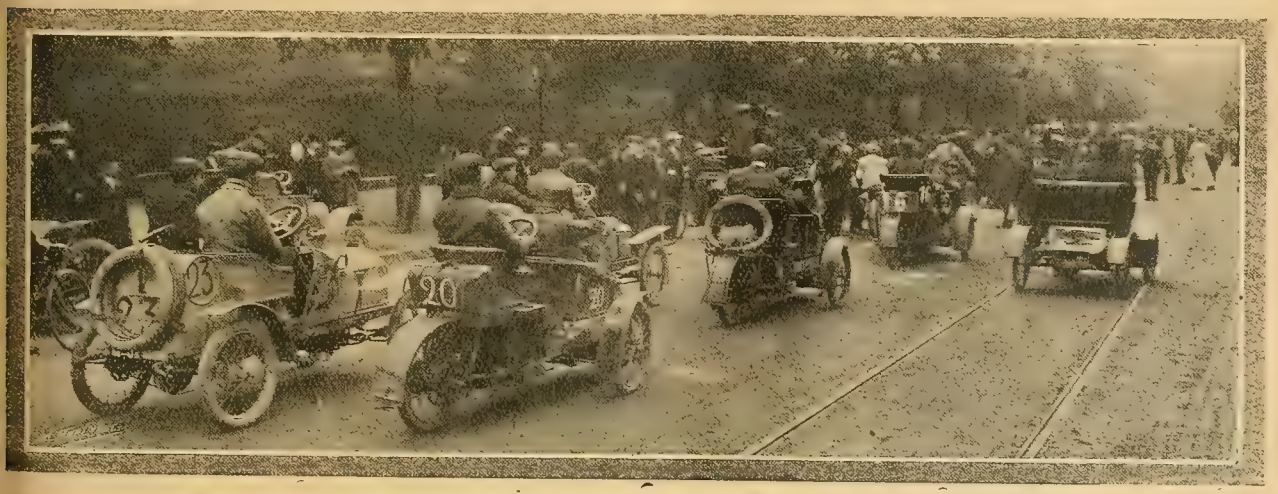
Promptly on the stroke of seven on Monday morning the motor cycles were despatched in pairs as follows: Quentin (No. 1) and Lurquin-Coudert (No. 3). They were followed one minute later by Peugeot (No. 4) and Lurquin-Condert (No. 6). The Peugeot (No. 7) went off at two minutes past seven. The four machines in Class II. were also sent away in quick succession, Alcyon (No. 10) and Werner (No. 11) starting with the Peugeot (No. 7). The Griffon (No. 12) and the Werner (No. 13) were despatched at three minutes past seven. The tricars in Class III. were the next to leave, the Du Furan (No. 16) taking the lead at 7.4, Du Furan (No. 18) at 7.6, Bérujeau (No. 19) at 7.7, and the Du Furan (No. 20) at 7.8.

The Itinerary and Penalties.

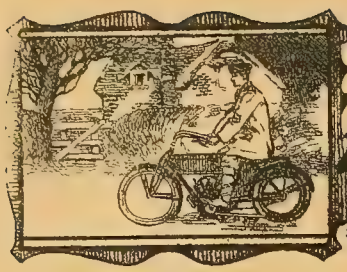
The trials finished at Paris on Sunday last, the whole journey having been some 930 miles. From Paris to Dijon (about 200 miles) was the first day's run; Dijon to Clermont-Ferrand (about 175 miles) the second day; on Wednesday speed tests were carried out on a course just outside Clermont-Ferrand; Thursday witnessed the journey from Clermont to Limoges—120 miles; Friday from Limoges to Bordeaux—135 miles; Saturday from Bordeaux to Tours—202 miles; and on Sunday from Tours to Paris—140 miles. The minimum average speed arranged was 15½ miles an hour. For every thirty seconds a machine arrived late each day a penalty of one point was inflicted, and, of course, as before stated, if it was found necessary to change any of the parts stamped, the machines were fully penalised. One of the Werner riders collided with a horse on the first day, and his machine was damaged so badly that he had to retire. Fortunately, he was not badly hurt. One of the Lurquin-Coudert riders was also the victim of an accident on Tuesday, he having been run into by a dog and upset. The other Werner rider accomplished a speed of twenty-five miles an hour average from Paris to Dijon with an engine of 210 c.c., less than a quarter litre capacity. The complete results will be given in due course.



Three of the motor cycle competitors in the Tour de France. Pons (Peugeot) on the left, and the two Lurquin-Coudert riders.



The Tour de France. Start of the tricars and voiturettes from the Porte Dorée, Paris, on Monday, May 11th.



CURRENT CHAT.

SPECIAL FEATURES.

WEEK END EVENTS (ILLUSTRATED).

THE TOUR DE FRANCE RELIABILITY TRIALS (ILLUSTRATED).

The Number of Queries.

One single morning last week our post bag contained no less than forty-four queries from readers.

Noting the Numbers.

We noticed the A.A. scouts on the Tonbridge and Maidstone roads entering the number of every car and motor cycle that passed last week. This proved so effectual in checking speed that all the traps were withdrawn on these roads. Bravo! A.A.

New Police Traps.

A trap is in operation in Parkside, Wimbledon Common. It starts at the Wimbledon end of Parkside and extends for 220 yards towards Putney. Also a trap is being worked in Wimbledon Broadway, and in Morden Road, South Wimbledon.

Two Trials on Sutton Bank.

The competition arranged by the A.C.U. for the 30th inst. is not the only hill-climb to be held on Sutton Bank this year, for, as we announced some weeks ago, the Leeds M.C.C. will hold a competition on the same hill for the Grange Trophy on June 23th.

Ware Cheshire.

Nearly forty policemen are being added to the force of the Cheshire County Constabulary. It is stated that the increase is due to the complaints respecting inconsiderate driving of motor vehicles.

A.C.U. Associated to the R.A.C.

Mr. Robert Todd reported to the R.A.C. General Committee at Nottingham, on the 9th inst., that the Auto Cycle Union had now arranged the terms of its severance from the Motor Union, and the A.C.U. and its affiliated clubs would now become associated under the R.A.C. scheme.

Congress of German Motor Cyclists.

The Grand Duke of Hesse has accepted the protectorate over the German Motor Cycling Congress to be held on the banks of the Rhine during the forthcoming Whitsuntide.

American Air-cooled Car for Brooklands.

A 50 h.p. Frayer-Miller car, owned by Mr. Jack Darwen, of Bromley, will be the first car with air-cooled engine to appear at Brooklands. The cylinders are provided with a covering through which a draught is projected by means of a fan driven from the crankshaft. The chief feature is the horizontal fitting of the valves.

Birmingham to Coventry Road.

£15,000 is to be spent on the Birmingham to Coventry Road in widening it and improving the surface and foundation.

An Acknowledgment.

We have been asked to state that the drawing on page 347 of the Spring Number, entitled "All Out," was worked up from a photograph of Mr. B. Richardson Billings's motor bicycle and sidecar, which was published in *The Motor Cycle* of November 20th last, page 929, the registered number of which is 520835.

FUTURE EVENTS.

May 30—Auto Cycle Union Open Hill-climb on Sutton Bank, Yorkshire.
" 30—"Sport and Play" Motor Cycle Races, Aston Villa Grounds, Birmingham.
June 5-8—M.C.C. LONDON-EDINBURGH RUN and return for Schulte Cup Competition, and Special Cup for Motor Bicyclists.
" 6-8—Brooklands A.R.C. Whitsun Meeting.
" 20—Entries close for M.C.C. Team Competition at Daventry.
" 27—M.C.C. INTER-TEAM TRIALS for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., Birmingham M.C.C., Lincolnshire M.C.C., and Liverpool M.C.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 4—Brooklands A.R.C. Meeting.
" 6-7—A.C.F. Grand Prix Races for Cars.
" 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
" 14-15—M.C.U.I. (Ulster Centre) Open 400 Miles Reliability Contest.
" 25—Motor Cycling Club's Petrol Consumption Tests.
Aug. 3-4.—M.C.C. Run from London to Land's End and back for Charles Jarrott Cup.
" 8—Essex M.C. Open Race Meeting at the Stadium, Shepherd's Bush, W.

The Ubiquitous Motor Cycle.

At a recent inquest at Leadenham, Lincolnshire, the coroner, Dr. C. H. D. Robbs, rode to the inn on his twin-cylinder N.S.U. motor bicycle. Not only so, but a solicitor, Mr. C. Nelson, and one of the witnesses, Mr. F. Norton, also journeyed to Leadenham on motor cycles.

New Clubs for the M.C.C. Team Trials.

Two more clubs intend sending teams to compete for *The Motor Cycle* fifty-guineas challenge cup, viz., the Lincolnshire M.C.C. and the Liverpool M.C. The Lincolnshire club may be represented by more than one team of six riders. Other clubs that have not decided whether to take part in this interesting competition should remember that if the Coventry M.C. win again this year the cup will become its absolute property.

Motor Cyclists in Warfare.

As in 1907, members of the Germa Motor Cycling Association will partic pate in this year's Imperial manœuvre the scene of which is Alsace; but in stead of twenty riders, the number participants in 1907, the War Offi calls for 100. This increased deman for motor cycling volunteers is signi cant of the high opinion formed b German military men of the practic value of such machines for purposes war.

M.U. Whitsuntide Tour.

The Motor Union is organising a pe sonally conducted tour to t Valley of the Loire at Whitsu tide. Agents of the M.U. w make every arrangement for t convenience of the tourists, a an expert courier will accompa the party during the entire tou It is estimated that the total e penses per head for the fourte days will reach £21 6s. 8d., e clusive of the running costs the vehicles, whether car or mot cycle. The charge for joini the tour is £1 1s. per head, a members who intend taking a vantage of the arrangemer should communicate with t secretary, W. Rees Jeffreys, Albemarle Street, W.

The A.C.U. Sutton Bank Climb.

There should be no dearth competitors in the A.C.U. op hill-climb at Sutton Bank. Co petitions promoted by the Ne castle, Leeds, Bradford, Sheffie Hull, Hartlepools, Middl brough, Scarborough, Sund land, and York County Mot Cycle Clubs are always well su ported, and the members shou welcome the opportunity of competi with the Southern and Midland e perts. We would remind those w intend riding in any of the nine clas on the programme that entries must received by the A.C.U. secretary Saturday next.

Track Race in Hanover.

On Sunday next, the 24th inst., t Hanover Motor Club will hold a ser of motor cycle races on the Hano track (Sport Platz). The track is modern cement one of 500 metres c cuit. Event 1 is a ten kilometre r for light motor bicycles under 100 l Event 2 is a ten kilometre race for to ing motor bicycles. Event 3 is a r over one kilometre, and the organis offer in addition to two cups, a spec prize of £5 to any rider who beats t track record for the flying kilomet which stands at 37⅗s.

A Lancashire Police Trap.

The Rainford County Police are working a trap on the main Southport Road, just outside St. Helens, over a 440 yards downhill part of the road.

Success of a Lightweight.

The Lyons Limonnet Hill-climb resulted in a win for Pelissier on a Motosacoche in 4m. 59s. Brissaud was second on a similar machine, while Barber, who also rode a Motosacoche, occupied fourth place. The course measured three miles in length, and the gradient is seven per cent. to nine per cent.

The Annual Mont Cenis Hill-climb.

Our Italian contemporary, *La Stampa Sportiva*, is again to the fore with a silver challenge cup for the motor cyclist making fastest time over the 1 in 10 gradient between Susa and Moncenisio, which measures about fourteen miles. Every rider finishing inside limit time of one hour receives a silver medal. The competition is fixed for the 14th prox.

The Cycle and Motor Trades' Benevolent Fund.

All provident members of the cycle and motor industries should enquire of the advantages of membership to the Cycle and Motor Trades' Benevolent Fund. The general hon. sec. and treasurer is Mr. A. J. Wilson, 154, Clerkenwell Road, E.C., and forms of application for membership can be obtained from him.

A.C.U. Open Hill-climb at Sutton Bank.

Sutton Bank, the venue of the A.C.U. annual open hill-climb on Saturday week, is five miles out of Thirsk, on the road *viâ* Helmsley and Pickering to Scarborough. Only two or three motor bicycles have up to the present made a clean ascent of the hill. When the pick of the Southern, Midland, and Northern riders have met at this famous Bank, probably a different tale will be told.

The Next Brooklands Motor Cycle Race.

A motor cycle race has been included in the Whitsuntide meeting of the Brooklands A.R.C. for commissioned officers in His Majesty's Navy. Particulars will be announced at a later date. There will be no other motor cycle race at this meeting, possibly owing to the M.C.C. London to Edinburgh Run and return falling on the same date. This event would no doubt have affected entries for a race at Brooklands considerably.

The Abuse of the Motor Horn.

On the occasion of the first provincial meeting of the R.A.C. General Committee at Nottingham, a letter was read from the Sheffield and District A.C. in regard to the use of the motor horn on pedal cycles. After considerable discussion it was agreed to write a suitable letter to the secretaries of the National Cyclists' Union and the Cyclists' Touring Club on the matter.

Our Petrol Supply.

Petrol imports during April reached a total of 1,941,559 gallons as compared with 3,200,328 gallons in April, 1907, and 1,367,213 in the same month of 1906. For the four months ended 30th April the number of gallons imported were :

1906	1907	1908
7,179,659.	9,658,383.	7,814,247.

A Short Run.

John Rawlingson, 25, motor fitter, was brought up from Maidstone prison in the custody of a warder and charged at the Westminster Police Court on Monday of last week with stealing a motor cycle belonging to Joseph Fox, of Eaton Place, S.W. The prosecutor advertised his motor cycle for sale, and was waited upon by prisoner, who represented that he was sent by a Mr. Frost to examine the machine, with a view to purchase. The prisoner was allowed to test it by a "short run round," but he disappeared, and failed to return. He is at present undergoing a sentence for another offence, and the police proved previous convictions. Mr. Horace Smith committed the accused for trial.

A Novel Suggestion.

"Cheshire," Belfast, makes a suggestion with regard to a competition. He says that he has been amusing himself by cutting out the illustrations in *The Motor Cycle* advertisements and assembling them on paper into a complete machine. He claims to have produced some splendid results in the way of an ideal motor cycle by embodying the frame of one make, engine of another, gear of another, etc. He thinks this would be an ideal form of competition. We beg to thank "Cheshire" for his suggestion, but at present we have no intention of promoting another competition. Some readers may like to amuse themselves with the idea, and we shall be interested to see their efforts, and to publish anything of real merit.

Motor Cycle Races at Birmingham.

The *Sport and Play* meeting at the Aston Villa Grounds, Birmingham, is on Saturday next, the 23rd inst. Several motor cycle races have been included in the programme, including a series of matches between three of the best known racing motor cyclists.

The Tour de France.

On Sunday last the following motor bicycles and tricars arrived in Paris, having completed the 930 miles of the Tour de France, organised by the Auto Cycle Club de France : Class I., No. 3 (Lurquin-Coudert), No. 4 (Peugeot), No. 7 (Peugeot). Class II., No. 12 (Griffon), No. 13 (Werner). Class III., No. 19 (Bérujeau). See pages 402-403.

The Motor Cycling Club Team Competition.

In connection with the above contest, Mr. J. Van Hooydonk, Trials hon. secretary, Spring Villa, High Road, Finchley, N., will be away in Ireland until May 30th, where he will drive a Phœnix light car in the Irish A.C. Reliability Trials. Club secretaries who write regarding the Team Competition will receive a reply immediately he returns.

Simms Manufacturing Co. v. Bosch.

This action was set down in the King's Bench Division of the High Court before Mr. Justice Lawrance and a special jury, and Wednesday, the 13th May, was mentioned. Mr. A. J. Walter, K.C., and Mr. Disturnal appeared for the plaintiffs, and Mr. Gore Brown, K.C., and Mr. Chater, for the defendants. Mr. Walter informed his Lordship that he would not be troubled with this case, which was an action with regard to certain letters patent which Mr. Gore Brown's client was claiming. An agreement had been come to by which the plaintiff obtained licenses under the letters patent set out in the claim. Mr. Gore Brown agreed, and the case was withdrawn.

Lancashire M.C.C. Hill-climb.

The results on formula $\frac{GT}{W}$ are as follows : Class B, single-cylinder bicycles.—No. 8, J. Woodcock (3½ h.p. Triumph). Figure of merit, 51.20. Class C, twin-cylinder bicycles.—No. 19, H. Haworth (5 h.p. Vindec Special). F.M. 62.91. Passenger class, J. W. Higson (3½ h.p. Triumph and sidecar). F.M. 55.25. The winner on general classification is J. Woodcock.

Competitors in the Barnsley Hill-climbing Competition at Stainboro' Park, which was spoiled by the wretchedness of the weather.
The winners were — Ledger (2¼ h.p. J.A.P.) and — Slater (3½ h.p. Triumph).

Essex Motor Club's Open Hill-climb.

THE above competition was held last Saturday at Lippitt's Hill, High Beech. The hill, although short, is a good test for the engines, and a considerable amount of skill is required to take the bend at high speed. The surface after the recent rains was in good condition, and fast times were made.

A new and novel arrangement of handicapping was instituted by Mr. A. G. Reynolds, by which it was sought to equalise the great variety of existing types of engines by placing them in various classes, viz., single-cylinder in three classes, engines not exceeding 80, 85, and 90 mm. in bore respectively, total weight of machine and rider to be not less than 320 lbs., and twin-cylinders in three classes, engines not exceeding 76, 80, and 85 mm. each cylinder, total weight of machine and rider to be not less than 340 lbs. It was very amusing to see the various ways and means competitors had used to bring their machines up to weight—sheet lead, lead water pipes, sash weights, and one rider was seen with a 7 lb. weight tied on his back.

Only one run up the hill was allowed, and the time made was credited to each class entered. It was a creditable attempt to arrive at a decision without waiting for formulæ calculations, but it caused a little dissatisfaction among competitors who had entered in more than one class with the same machine, as it did not give them an opportunity to improve on their times; however, a second attempt was impossible.

Scales were provided at the foot of the hill for the use of competitors to verify their weight, the official weighing taking place immediately each rider had completed the ascent. This ensured the total weight being carried.

The officials were: V. Hart, judge; E. R. Russell and W. H. Bishop, marshals; G. Pluck, starter; E. J. Bass, trials hon. sec.; Ebblewhite and Dutton, timekeepers.

The times were taken from a flying start, and the figures given represent zero as fastest time:

LIGHTWEIGHT CLASS.—Total weight not less than 250 lbs.

1. G. L. Fletcher (2 h.p. Moto-Rêve) ... 0
2. R. M. White (1½ h.p. Hazel) ... ... 1⅘s.

R. J. Bell (Moto-Rêve) and W. Smith (Motosacoche) dismounted.

CLASS I.—Single cylinders not exceeding 82 mm. Total weight not less than 320 lbs.

1. R. M. Brice (3½ h.p. Brown) 0
2. E. Varney (2¾ h.p. Givaudan) ... ... 1⅘s.
3. L. W. Bellenger (3½ h.p. L.M.C.) ... 3s.
4. W. A. Jacobs (3½ h.p. Rex) ... ... 4⅖s.
5. R. G. Dendy (3½ h.p. Brown) ... ... 8⅗s.
6. A. P. Howard (3½ h.p. Triumph) ... 9s.
7. P. Weatherilt (3½ h.p. Zenith) ... ... 31⅘s.
8. F. W. Barnes (3½ h.p. Zenith) ... ... 33⅘s.

CLASS II.—Single cylinders not exceeding 85 mm. Total weight not less than 320 lbs.

1. C. B. Heaton (4½ h.p. Noble) 0
2. R. M. Brice (3½ h.p. Brown) ... ... 4s.
3. G. Gibson (3½ h.p. Triumph) ... ... 6⅗s.
4. W. A. Jacobs (3½ h.p. Rex) ... ... 8⅗s.

It was a "day out" for Brown and Rex Motor Cycles at the Essex M.C. Lippitt's Hill-climb.
(1) R. M. Brice (3½ h.p. Brown) nearing the summit. (2) O. C. Godfrey (5 h.p. Rex) crossing the finishing tape.

CLASS III.—Single cylinders not exceeding 90 mm. Total weight not less than 320 lbs.

1. R. M. Brice (3½ h.p. Brown) 0
2. W. A. Jacobs (3½ h.p. Rex) ... ... 9⅗s.

CLASS I.—Twin cylinders not exceeding 76 mm. bore each cylinder. Total weight not less than 340 lbs.

1. F. W. Applebee (5 h.p. Rex) 0
2. C. R. Collier (6 h.p. Matchless) ... ... 1⅕s.
3. F. Applebee, jun. (5 h.p. Rex) ... ... 2⅖s.
4. O. C. Godfrey (5 h.p. Rex) ... ... 3s.
5. T. H. Tessier (6 h.p. Bat) ... ... 4s.
6. W. H. Wells (5 h.p. Vindec) ... ... 5⅕s.
7. F. White (5 h.p. Rex) ... ... 6s.
8. A. G. Reynolds (5 h.p. Vindec) ... ... 6⅖s.
9. O. L. Summers (5 h.p. Vindec) ... ... 9⅕s.
10. W. Pershke (5 h.p. Diamond) ... ... 11s.

CLASS II.—Twin cylinders not exceeding 80 mm. bore each cylinder. Total weight not less than 340 lbs.

1. F. W. Applebee (5 h.p. Rex) 0
2. F. Applebee, jun. (5 h.p. Rex) ... ... 2⅖s.
3. O. C. Godfrey (5 h.p. Rex) ... ... 3s.
4. W. H. Wells (5 h.p. Vindec) ... ... 5⅕s.
†. F. White (5 h.p. Rex) ... ... 6s.
†. E. J. Bass (7 h.p. Peugeot) ... ... 6s.
7. A. G. Reynolds (5 h.p. Vindec) ... ... 6⅖s.
8. W. Pershke (5 h.p. Diamond) ... ... 11s.

† Tied.

CLASS III.—Twin cylinders not exceeding 85 mm. bore each cylinder. Total weight not less than 340 lbs.

This gives the same result as Class II., with the exception that A. G. Reynolds did not enter for this class.

sex Motor Club's Open Hill-climb.—

MEMBERS' EVENT.—Single cylinders.

1.	E. Varney (2¾ h.p. Givaudan)	0
2.	R. G. Dendy (3½ h.p. Brown)	6⅘s.
3.	A. P. Howard (3½ h.p. Triumph)	7⅕s.
4.	W. S. Fruish (3½ h.p. Progress)	19⅛s.

MEMBERS' EVENT.—Twin cylinders.

1.	A. G. Reynolds (5 h.p. Vindec)	0
2.	O. L. Summers (5 h.p. Vindec)	2⅘s.
3.	Miss Blythe (3½ h.p. Diamond)	14⅗s.
4.	B. R. Billings (5 h.p. Peugeot)	20s.

HANDICAP.—Passenger motor cycles.

1.	R. M. White (5 h.p. Brown)	Scratch
2.	A. P. Howard (9 h.p. Singer)	10s.
3.	F. Cozens (10 h.p. Lagonda)	15s.
4.	F. Pershke (5 h.p. Chater Lea)	30s.
5.	Phœnix Motors (6 h.p. Phœnix)	20s.
6.	Zenith (6 h.p. Zenith)	Scratch

On Saturday next an inter-club team competition with ne West Essex A.C. has been arranged (see page 408). The cripples' outing has been fixed for June 27th, and the committee will be glad if those members who own passenger vehicles will lend them for that day. Those who are willing to assist in this matter should communicate with the secretary, Mr. Harold Fuller, Wivenhoe, Wynndale Road, South Woodford.

A.C.U. SUTTON BANK HILL-CLIMB. Alterations to the Rules.

A contour of Sutton Bank and particulars of the competition to be held on May 30th were published on page 377 last week. Some alterations have since been made to the conditions as follows: (1.) The maximum weight for the machines has been abandoned, except in the light-weight class. (2.) The limit in Class II. has been extended from 80 mm. to 82 mm. (3.) There is some alteration in the entry fees, viz.: For entrants connected with the trade, £1 1s.; for each additional entry in any other than the original class, 10s. 6d. For private members of the A.C.U. and members of affiliated clubs (private owners), 7s. 6d.; for each additional entry in any other than the original class, 3s. 6d. Others (private owners), 10s. 6d.; for each additional entry in any other than the original class, 5s.

Scene at the foot of Lippitt's Hill, High Beech, before the start of the competition on Saturday. The entries numbered forty-six.

Motor Cycle Racing at the Franco-British Exhibition.

THE first motor cycle race held on the new track in the Shepherd's Bush Stadium took place on the occasion of the opening of the Franco-British Exhibition by His Royal Highness the Prince of Wales on Thursday last, e 14th inst. The motor cycle event formed part of the orts programme organised by the Finchley Harriers, and, as usual when bicycle and motor bicycle races are run together, e latter were kept till the very end of the meeting, when ore than half of the spectators had left.

The entries were ten in number, and their fewness may be counted for by the fact that no one could even see the ack prior to the event. This doubtless accounted for the sence of many of the well-known racing men, who were turally averse to competing on a track which they had ver tried.

As regards the track itself, a few words may be of interest. ie curves are more acute than at Canning Town, and the ack itself lacks width; consequently it is not highly suitable motor cycle racing machines, and it is a thousand pities was not made so. For touring machines, however, it serves purpose. According to a competitor, it is safe for about y miles an hour.

The motor cycle event was a handicap, and in Heat 1 the lowing competitors started: E. McPherson (4 h.p. Brookds, J.A.P. engine, 85×85 mm.), scratch; F. W. Applebee h.p. Rex, 82×89 mm.), 200 yards start; G. Aldington h.p. twin Kerry), 200 yards start. Some delay ensued, er the time had at last arrived for the motor cycles to take their positions, as no one knew where the track was rked off. All through the afternoon it poured with rain, d at the moment of starting the motor cycle races it rained rder than ever, the only consolation being that the track was too wet to be slippery. Applebee made a good start, but Aldington was soon in trouble. Owing to the wet his magneto short-circuited and put the back cylinder out of action, while at times Applebee's Rex misfired badly. Owing to only two men being left in the heat, four laps were omitted, and the race brought to a speedy conclusion. Result: Applebee 1, McPherson 2. Time, 6m. 5⅕s.

The following competitors took part in the second heat: G. H. Gerhard (4½ h.p. Brooklands, J.A.P. engine, 85×95 mm.), 100 yards start; H. A. Cooper (3½ h.p. Triumph, 84×86 mm.), 120 yards start; A. E. Dendy (3 h.p. Centaur, 80×80 mm.), 200 yards start. Gerhard went ahead and maintained a good lead, finishing in the first place, while Cooper was second and Dendy third. Time, 7m. 59⅕s.

In the final, Applebee kept his lead for about two laps, when Cooper overtook him, and some excitement was occasioned. Applebee made a good fight and rode extremely well. Immediately, however, after Cooper had passed, the top of the cylinder and combustion chamber of Applebee's machine blew off, causing his withdrawal. Cooper finished first, Gerhard being second, and McPherson third. Time, 7m. 36⅗s.

Applebee's mishap was probably due to an old crack, as the metal at the fracture was rusted for the greater part of its extent. The whole of the cylinder head and combustion chamber, with the sparking plug, was blown off, and hung down by the high-tension wire. The rider was in no way injured.

The above races were open to touring motor bicycles, having a bore and stroke not exceeding 90×90 mm, and a gear not higher than 4 to 1. Mr. F. Straight was the handicapper, and members of the A.C.U. committee the officials.

CLUB NEWS.

Norwood and District M.C.

A new club was formed for the Norwood district at a meeting held on Wednesday evening last. The hon. secretary is Mr. W. H. Wilson, 2, Wolfington Road, Norwood.

Richmond and District M.C.C.

The next run will be to Petworth on Saturday, May 23rd, for the week end, when a hill-climb will take place. Gold and silver medals are offered as prizes. Entries close to-morrow, and should be sent to H. C. King, Walton House, Surbiton Road, Kingston-on-Thames.

Halifax and District M.C.C.

At a meeting held on the 14th inst. it was decided to form a motor cycling club for Halifax and district, with an annual subscription of 5s. All local motor cyclists are heartily invited to join, and the secretary, H. D. Helliwell, 7, Harrison Road, Halifax, will be pleased to hear from them.

Hull and East Riding A.C.C.

A speed-judging contest was held on Thursday last on the Hedon Road, Hull, and proved a very enjoyable competition. After this was run off the members proceeded to Withernsea. The following were the prize winners: 1, R. Pearson (3½ h.p. Minerva), 16 miles, 14.94; 2, Colour-Sergt. Evans (5 h.p. Vindec Special), 19 miles, 19.25; 3, A. Willis (5½ h.p. Rex), 15½ miles, 14.94.

Meeting of Nottingham Motor Cyclists.

A meeting will be held at the Lion Hotel, Clumber Street, Nottingham, at 8.30 sharp on Monday next, May 25th, when all local motor bicyclists, tricarists, and small car owners are cordially invited to attend. Mr. F. Straight (secretary Auto Cycle Union) will be present to discuss matters. Those who cannot attend are requested to write Mr. E. G. Young, Trent Bridge, Nottingham, their opinions.

Glasgow M.C.C.

The open hill-climbing contest on Peesweep Hill, Paisley, on Saturday last, took place under most disagreeable weather conditions. There were twenty-six starters, divided into three classes: Class 1, single-cylinders, not exceeding 80 × 80 mm.; Class 2, single-cylinders exceeding 80 × 80 mm.; Class 3, multi-cylinders. The results on the formula will appear in our next issue.

The fastest times in each class were: Class 1, Jas. Roberts (3½ h.p. N.S.U.); Class 2, A. G. Bostock (3½ h.p. Triumph); Class 3, D. G. Bostock (6 h.p. N.S.U.).

West Essex A.C.

The result of the eighty miles competition for the Gamage cup is as follows: Non-stops, R. E. Denby (3½ h.p. Brown), W. E. Gunnett (3½ h.p. Triumph), W. M. Gunnett (3 h.p. Triumph), V. Baldwin (3½ h.p. Brown), and G. W. Glenny (8-10 h.p. Darracq car). The final, in order to find the winner, will be run off in June, and will take the form of a speed-judging competition.

The inter-club contest with the Essex M.C. is on Saturday next, and the course will be a circular one, from the Castle, Woodford, by Sewardstone, Waltham, Epping, Ongar, Chigwell, back to Woodford. The circuit, covered twice, totals seventy to eighty miles. This will enable spectators to view the riders at various points. Start 3 p.m.

Manchester M.C.

This club held its fifth annual hill-climb for motor cycles on Saturday last. The hill selected was a very stiff gradient on the borders of Derbyshire and Cheshire. Thirty-nine entries were received, and nearly all started. The following results are announced, although subject to scrutiny:

Results on handicap.—1, W. Andrews (3½ h.p. Jap), Humber vase and gold medal; 2, W. Heaton (3½ h.p. Rex), silver medal and gold medal for single-cylinder non-trade member; 3 A. H. Albert (3½ h.p. Quadrant), bronze medal.

The hon. sec., A. J. Moorhouse, riding a 5 h.p. Twin Rex, made the fastest time of the day, gaining the gold medal for the non-trade twin-cylinder class, and the gold medal for the first twin-cylinder machine on handicap. The tricar gold medal was won by E. Rees on a Dragon runabout. The winner (Andrews) secures the Humber vase for his own property, as he won a half share in the same at the 1904 hill-climb. The other winners of 1905-6-7—Percy Butler (3½ h.p. Triumph), A. V. Baxter (5 h.p. Vindec), and J. Marshall (3½ h.p. T.T. Triumph) respectively—competed, but were unsuccessful, they being outside the prizes.

North-west London M.C.C.

Between twenty and thirty starters are expected for the twelve hours London to Coventry and back trial next Saturday. It has been decided to enter a team for *The Motor Cycle* challenge cup.

Swansea and District M.C.C.

A meeting will be held at the Grosvenor Hotel, Swansea, on Tuesday, the 26th inst., at 8 p.m., to consider the advisability of forming a motor cycling club. Further particulars may be obtained from W. S. Griffiths, 2, Mackworth Terrace, Swansea.

Great Yarmouth and District M.C.C.

The club penalty run was held on Thursday last over a course of seventy-six miles; two circuits of thirty-two miles and one of twelve, starting from Haddisoe Church. The starters were fifteen out of twenty entrants. The following made non-stop runs: Dr. Mayo, Moto-Rêve, time 3h. 59m.; Mr. Galley, 2¾ h.p. Anglian, 3h. 59m.; Mr. Hallinstein, 3½ h.p. Wanderer, 4h.; Mr. Watts, 3¼ h.p. Singer, 4h.; Mr. North, 4 h.p. Roc, 3h. 58m.; Mr. Smith, 3½ h.p. Peugeot, 3h. 44m.

Perth and District M.C.C.

A consumption trial was held on Saturday round the Rhynd circuit, starting at Bridge of Earn. There were twelve starters. The competitors were given petrol on the formula $\frac{W + C}{25} = P$, and had to run their machines round the circuit till the engines stopped, the distance being then noted. The first three in order of merit were as follows: 1, C. Livingstone (3½ h.p. Rex), 34.5 ozs. allowance, 31¼ miles, 145 approximate miles per gallon; 2, J. W. Robertson (3½ h.p. Rex), 33 ozs., 30 miles, 145; D. Bachelor (3½ h.p. Rex), 33 ozs., 29 miles, 141½. Pedalling was permitted, and was fully taken advantage of by one or two competitors.

Bradford M.C.C.

A hill-climbing contest was decided at Greenhough Hill, Pateley Bridge. Unfortunately, the start was somewhat delayed by lack of arrangements with the police, but eventually a start was made at 3 p.m., but by then many members had retired, believing the contest to have been abandoned. The result was as follows:

1. Eric Myers (3½ h.p. Triumph) ... ... 60⅖s.
2. J. Scriven (5 h.p. Rex) ... ... 68⅖s.
3. F. Gerhartz (5 h.p. Vindec Special) ... 72s.

A speed-judging competition was held on the 17th inst., the trophy competed for being a pair of bronzes presented by Mr. Barraclough. The course was five miles in length, and the speed fixed at 15 m.p.h. The winner proved to be Felix Scriven (5 h.p. Rex), who completed the distance in 20m. 30s., being 30s. within schedule time.

Leeds M.C.C.

The official results of the hill-climb at Beulah Hill are:

	Single-cylinder Class.	Figure of merit.
1.	E. S. Myers (3½ h.p. Triumph)	14.6
2.	— Slater (3½ h.p. Triumph)	12.9
3.	F. W. Greenwood (3½ h.p. Rex)	11.9
	Twin-cylinder Class.	
1.	A. B. Hughes (4 h.p. N.S.U.)	12.8
2.	H. A. Hughes (5½ h.p. N.S.U.)	11.2
3.	Geo. Tennant (5 h.p. Vindec)	10.9

The final was run off by handicap representing the difference in time between the winner of each class, and resulted as follows: 1, A. B. Hughes; 2, E. S. Myers.

Fastest times: E. S. Myers for single class; Owen Brooks, twin class.

Awards: Kirk Trophy and gold medal, A. B. Hughes; silver medal, E. S. Myers; bronze medals, H. A. Hughes and — Slater; certificates for fastest time, E. S. Myers and Owen Brooks.

Cambridgeshire M.C.C.

The following are the results on the A.C.U. formula of the hill-climb held on the 7th inst. at Croydon, to select a team of seven to compete against the Cambridge University Motor Cycle Club to-morrow (Thursday):

1, W. King (2¾ h.p. King); 2, H. H. Harper (2¾ h.p. King); 3, C. W. Wilson (2¾ h.p. King); 4, F. T. Cox (2¾ h.p. King); 5, F. Pryor (2¼ h.p. Humber, two-speed); 6, A. J. Mihill (2¾ h.p. King); 7, B. L. Peters (3½ h.p. Minerva). Messrs. Golder and Sturton are reserves.

Club News.—

Leeds M.C.C.

The run on the 23rd inst. is to Pocklington to meet the Hull A.C.C., and on the 31st inst. to Croft Spa, meeting at the Angel, Wetherby, 10.30 a.m.

Worcestershire M.C.C.

On the 24th inst. the run is to Bridgnorth, and on the 30th inst. to Stourport; tea at Three Tuns. There will be a short evening run from headquarters at 6.30 every Thursday.

Burton-on-Trent and District M.C.C.

The above club will hold a run to Market Drayton on Whit Monday, at the kind invitation of a member. A reliability trial as far as Stafford will be incorporated in the run, the minimum time for the twenty-five miles being 1h. 20m. and the maximum 1h. 30m.

Coventry M.C.

The committee of the above club are extremely anxious to arrange for two checkers at Holyhead for the members' reliability run on May 30th. If this should catch the eye of any willing helper in Holyhead, will he kindly communicate with the hon. secretary, E. W. Walford, 19, Hertford Street, Coventry?

Edinburgh M.C.C.

An open hill-climb was held on the 9th inst., when twenty-eight entries were received. There were four classes, singles, twins, tricars, and also a class for unlimited engines which was scratch. — Mowat (3½ h.p. Griffon) won the single-cylinder class; C. H. Macmillan won the twin class on a F.N.; and Baxter, on a 5½ h.p. Rex, won the scratch class. Baxter also made fastest time in the twin class. In the unlimited class R. Macmillan, on a 3½ h.p. Ormonde, made second fastest time. There was a large turn-out of motor cyclists, and fully 400 interested spectators.

Southend and District M.C.

At the extraordinary general meeting, a rule was passed admitting country members residing outside a radius of ten miles from the club's headquarters at Southend-on-Sea at half subscriptions.

Arrangements have now been completed with the committee of the flower show annually held at Great Stambridge for the promotion by this club of a gymkhana on Wednesday, July 22nd, on the occasion of the flower show. The Show Committee are contributing a substantial sum of money towards the prizes to be offered.

Lincolnshire M.C.C.

Two routes have been decided upon for the great reliability trial on Whit Monday. The South is by way of Grantham, Stamford, Spalding, Holbeach, Boston, and Lincoln. The North goes by way of Horncastle from Lincoln to Spilsby, up to Grimsby, through Brigg to Scunthorpe, down to Gainsborough, and home to Lincoln. Both are equally difficult, and the distance is 125 miles. Every member making a non-stop run has a medal, and the silver cup goes to the rider keeping nearest to his schedule.

Mr. W. J. Clarke, Louth, who rode a twin Rex in the hill-climb at Waddington, has been adjudged to have made by far the best performance of the day, and he, therefore, takes the handsome silver valse presented by Mr. R. M. Wright Lincoln.

Newcastle Motor Club.

Two important fixtures have been decided upon: June 8th (Whit Monday), 114 miles non-stop, from Newcastle to Jedburgh and back, for Robson shield; June 25th, reliability trial, for Lucas bowl, from Newcastle to Edinburgh and back.

Brighton Cyclists' Club (Motor Section).

A fair number of members turned out for the run to Billingshurst on May 10th, and a very enjoyable day was spent, some fourteen members sitting down to dinner at the King's Arms. The next run takes place on May 31st, to Hurstmonceux.

Surrey M.C.C.

This club has now enrolled its fortieth member, but the officials are anxious to make the club one of the strongest and most influential in the country. The club is affiliated to the Auto Cycle Union, and has arranged an extensive programme. Unattached riders are asked to communicate with the hon. sec., E. H. Russell, 7, Haydon Place, Guildford.

A competitor in the Motor Cycle Union of Ireland (Ulster Centre) Hill-climb at Carnmoney (see page 388 last week).

"The Autocar Directory," which has just been published, fills a long-felt want. We are constantly being asked for addresses of firms in the motor cycle and motor car trades, and in many instances the enquirer merely knows the name of some proprietary article, but does not know the address of the maker or agent. "The Autocar Directory" is a classified directory of the motor industry, *i.e.*, makers of accumulators will be found under that heading, but if they should in addition make induction coils, their names will again be found under "Coils," and so on. There is a list of "named" motor bicycles, tricars and sidecars, motor cars, industrial vehicles, accessories, clothing, etc.; also an alphabetical list of names and addresses, with telegraphic addresses, telephone numbers, etc. The price is sixpence, and it can be obtained from Iliffe & Sons Ltd., 20, Tudor Street, E.C.

The first meeting of the newly-formed Cambridgeshire Motor Cycle Club. Seven picked members of this club will compete against a like number of Cambridge University motor cyclists to-morrow in a hill-climb.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Twin-cylinder Puzzles.

[3312.]—Referring to "Another Twin-cylinder Puzzle" mentioned by "Ixion" in *The Motor Cycle* of April 29th, I had exactly the same trouble with my 5½ h.p. single-cylinder Rexette. It was due to excessive wear in the butterfly throttle, which was able to rock about independently of the lever. The result of this was that the engine would only run when the lever was more than half advanced, and could not be controlled at all by the throttle.

R. O. SEVILLE.

The Motor Cyclists' Ideal.

[3313.]—In your issue for May 6th, "Nirvana" [letter 3296] has, I think, specified about my ideal motor cycle. I should lay stress upon large tyres, and should like to find something really satisfactory in the way of keeping the rider clean in muddy weather without interfering with the cooling of the engine. I imagine that a fan would be a necessity for riding in traffic, and I should like to get a more direct drive than the F.N. has, doing away with the gearing in the bottom bracket if possible. This would make the machine really silent. I have had a four-cylinder F.N. for over a year, and would not think of having less than four cylinders, other than upon a lightweight.

A. DUKINFIELD JONES.

The Scandal of Motor Cycle Tyres.

[3314.]—We have noticed in your issue of May 6th the wholesale condemnation of tyre manufacturers by Mr. W. E. Holmes. We think if Mr. Holmes could see a sample of our Modèle de Course cover, which we specially brought out several years ago to meet the requirements of motor cyclists who want a tyre of extra heavy make, we should be in a position to convince him that there is a firm who can produce an article which would meet his requirements.

THE CONTINENTAL TYRE AND RUBBER CO.

[3315.]—I think Mr. Holmes [letter 3299] is perhaps a little too sweeping in his indictment of the tyre manufacturers, but there is no doubt that there are unsatisfactory tyres on the market. After several expensive and unsatisfactory experiments with other makes I tried the Palmer cord tyre, and from that day my troubles ended. Last season I ran one of these tyres on the back wheel of a 3 h.p. machine a distance of 3,744 miles with only one or two nail punctures, and when I sold out in the winter, except that the corrugations on the tread had almost disappeared, the cover was as good as when new.

ES 224.

[3316.]—I feel it would be unfair to allow Mr. W. E. Holmes's letter on the above subject to pass without comment. There are, of course, as you say in your footnote, "tyres and tyres," and for my part I have no reason to complain. I daresay, were statistics taken, I should be found to be one of the most prodigious riders in the country, living as I do in the saddle from morn to eve six days of the week, and seldom covering less than one hundred miles between 9 a.m. and 6 p.m. I have, since the beginning of March, covered over 4,000 miles on my 3½ h.p. Triumph without a single puncture, until a recent Saturday, when through negligence I allowed a stone cut to cause a burst. Now, I hold no brief for any make of tyres, but being a heavy rider require something reliable. My back tyre is a Clincher A Won, fitted with Grose non-skid; the front a Clincher A Won by itself.

W. L. PALMER.

Lightweights in the End-to-end.

[3317.]—With reference to letter No. 3290, signed R. J Getting, it is evident from what he says that he is more conversant with the route than "W.W.D.," and it will undoubtedly be an extremely severe test for lightweigh machines. We look forward, as he does, to a large entry o lightweight machines, and as far as the Moto-Rêves are concerned they would not dream of being absent!

THE MOTO-REVE CO.

Gudgeon Pin Accidents

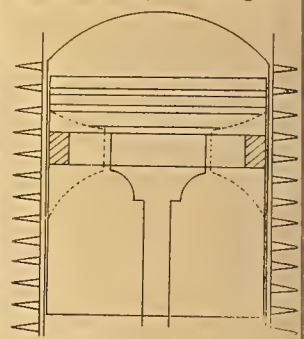
[3318.]—Your correspondent. Mr. J. Hayton, goes ou of his way to ridicule an experience related some time ag by Mr. B. H. Davies, who had an exhaust valve head stuc sidewise in the top of his piston, like a penny in a cheese Mr. Hayton evidently belongs to that small class of you readers who invariably attack anything that Mr. Davie writes, insinuating either that the latter does not tell th truth or does not know what he is writing about.

I should like to inform Mr. Hayton, if he will believe me that a precisely similar incident happened to myself, ridin the same make of machine as Mr. Davies. The valve broke o at the top when the engine was running fast, with th result that the valve head rolled on to the top of the pisto and was caught and jammed sidewise in it. As I had to pa a considerable sum for a new piston, I am not likely to forge the occurrence.

I may add that Mr. Davies was particularly kind i answering an enquiry I addressed to him as to a small devic he had invented to prevent a recurrence of such an accident I may also add that, in my opinion at any rate, there is n feature of your excellent paper which is more enjoyable tha an article by Mr. Davies, whose very long practical experienc is worth a good deal more than the theories of some of you correspondents.

W. MERRITT.

[3319.]—In common with several of your correspondents I was once a sufferer through gudgeon set-pins falling out but since fitting the small device as seen in the sketch I have no need for these little worries. It was fitted for me by Mr. Felton, a local repairer, but can easily be done by any mechanic. About ⅛in. or ¼in. is sawn off each end of the gudgeon pin, and a circular piece of brass of the same diameter is placed at each end, long enough to touch the cylinder at either side. It will be seen that this prevents any side play of the gudgeon, and thus does away with any need for set-screws. The brasses show no signs of wear, and apparently have no effect on th cylinder walls.



ILFORDIAN.

Courtesy at the Shows.

[3320.]—I hope you will grant me space to remove the stigma placed upon Liverpool business men by the error in my letter in your issue of last week.

When mentioning the instance of lack of courtesy shown at the latest motor show in Town, I meant London. It was far from my intention to cast any reflection on the acknowledged keenness and hard-headedness of the Northerner.

R. S. BROOKE-HITCHING.

Luggage Carriers.

[3321.]—"There is nothing new under the sun." The luggage carrier illustrated in the issue of April 22nd—3265—was the subject of a patent—No. 21,313, 1901, "An Improved Luggage Carrier for Cycles"—taken out by our Mr. Stewart and Mr. J. Riley, of Manchester, years ago. The idea was allowed to lapse, as after submitting it to Messrs. H. G. Turner, the pioneers of cyclists' carriers, and Messrs. Joseph Lucas, Ltd., who refused to purchase, only a very small sale resulted. It is, of course, public property, and we have fitted dozens to motor and pedal cycles during the last seven years. We will not bore your readers with the specification, but the last item of claim runs as follows: "In the case of extended seat-pillars the appliance may be clipped to either of the tubes forming such seat-pillars."

THE MANCHESTER AUTO CYCLE CO., LTD.

Sidecar Tyres.

[3322.]—The letter in the issue of May 6th from Mr. J. F. Pooley respecting the wearing of sidecar tyres is an interesting addition to the fixed *v.* flexible sidecar controversy.

My experience (about 3,000 miles with a Liberty fixed or rigid sidecar) shows that this pattern car is not heavy on tyres. The tyre bought with sidecar was a Liberty Duraflex, and was used without consideration, taking the roads as they came, in Warwickshire, Somerset, Gloucester, Devon, Cornwall, and Wales. The one tyre stood the 3,000 miles, and the tread was good then for a similar number apparently, but it was spoilt in another way. Early in the season I fitted some chain nailcatchers, and fitted them so badly that the clips ploughed a groove in the sidecar tyre through to the canvas. The tyre stood about 2,000 miles after this misuse, until the heavy wet weather came, in October, when bursts became the order of the day, and I had for the first time cause to inspect my sidecar inner tube.

I may say that I never experienced any strain on the cycle frame, or difficulty in steering, or riding "solus."

HENRY W. WARRE.

The Balancing of Petrol Engines.

[3323.]—I am glad to see that my letter *re* the balancing of petrol engines has led to some very interesting correspondence. I should, however, like to point out to your various correspondents that I am not complaining because the engine makers do not produce an impossibility, viz., a perfectly balanced engine. In the case of the Kerry and Quadrant engines I mentioned, the alteration to the flywheels did undoubtedly lead to far less vibration and improved running, which seems to prove that the engine makers do not turn out their engines anything like so well balanced as they could do if they chose to take the trouble.

3187 mentions that after altering his engine he found excessive vibration in the front fork, which eventually fractured, but who is to prove that his forkcrown broke because he altered his engine? It is surely quite reasonable to assume that the fork was faulty, and would have broken sooner or later in any case.

In reply to 3226, my Triumph runs very satisfactorily at all reasonable speeds, which I believe is partly due to rather low compression as compared with some engines, but I still think that there could be a further improvement.

The Rex Co. are the only makers who have come forward to say a word for themselves, and in fairness to them perhaps I should have said, "Why do some of our best engine makers," etc. As to vibration on the twin Rex, I cannot say, never having ridden one. SHAZBAZZIK.

Sidecars and Single Gears.

[3324.]—I feel I cannot let "Ixion's" remarks in a recent issue pass without a protest, as I think they give quite a wrong impression, and that they will frighten owners of single-geared machines from getting sidecars, by which they will lose a very great amount of pleasure. The same applies to your remark in the "Questions and Replies" column, viz., "For serious touring a change gear is indispensable." I have ridden many hundreds of miles with a single-geared 3½ h.p. Quadrant and old pattern Liberty sidecar with Montgomery compensating joints attached, so that I do not speak without any experience. To take one instance. Last summer I one day rode from Cardiff to West Kirby (near Birkenhead), 170 miles, in just under the twelve hours with an 8½ stone passenger, and, although I used a gear of 4⅔ to 1, I only had to pedal a few light strokes on two hills, and that was because the belt slipped badly. The stops—for meals and a burst tyre—amounted to nearly four hours. I know, of course, that there were no very bad hills on this route, but it is very seldom that a really bad hill cannot be avoided, and when one is touring for pleasure, what does a detour of even as much as twenty miles matter? Even if a hill steeper than 1 in 10 cannot be avoided, surely it is not a very serious matter for the passenger to have a little walk while the sidecar is run up empty, though I have never even had to do that since I got my 3½ h.p. machine, except when through some cause the engine was running badly.

For the benefit of Quadrant riders I might here state that I find that my 3½ h.p., geared 5 to 1, with sidecar and 8½ st. passenger, is just about the same as far as hills are concerned as my old 3 h.p. surface Quadrant used to be with normal gear, solus (except perhaps in the teeth of a terrific head wind), and there were not many hills that they would not romp up. Even with that little machine I had a great deal of pleasure with the same sidecar. I remember once riding from West Kirby to Dolgelly quite comfortably between breakfast and lunch (eighty miles in four and a half hours with several stops), and there are some long stiff pulls on that run. Even with that machine I could get up almost anything with the sidecar empty. For instance, I once had to go from Bettws-y-Coed to Blaenau Festiniog (Contour Road Book, Route 1018), and it was amazing the way the little machine tore up the mountain from Roman Bridge with the empty sidecar. My present mount, with sidecar, geared 5 to 1, will do thirty miles an hour on the level, and will simply romp up anything under 1 in 11 with passenger.

Old and new methods of locomotion in the heart of India. The photograph was taken at Raipur, nearly half-way between Bombay and Calcutta.

I have fitted a larger belt rim than the one fitted by the makers so that I can get my low gear with a bigger diameter engine pulley, and this has eliminated all belt-slipping trouble. I can still get my normal gear of 4 to 1 when the belt is at the top of the adjustable pulley. My machine is the 1906 pattern, and is by no means above the average in power.

I think I have said enough to show that a two-speed gear is by no means a necessity for touring purposes (although it is undoubtedly a luxury), and that to put 5 h.p. as a minimum is absurd. As for "Ixion's friend, who still knows what it is to fail on a hill with empty sidecar with a 5 h.p. double geared twin, I can only imagine that his machine is only fit for the scrap heap, or that he has been trying to take the sidecar to the top of Snowdon, or something of that sort.

I have no doubt that "Ixion" will say that it is obvious that I have never been up a hill, and do not know what one is, but my point is this, for ordinary pleasure touring on average English roads a 3½ h.p. single-geared machine is all that is required if it is given attention and kept in good trim. If you want a combination that will go absolutely anywhere and climb steep mountain passes without dropping the passenger, then by all means get the most powerful machine that is made. C. G. K.

[If "C. G. K." had stated his weight, the above mentioned experiences would have been of more value.—ED.]

Luggage Carriers and Other Items.

[3325.]—I saw Messrs. Reed and Co.'s letter and photograph in the issue of April 22nd. I admit the similarity, but the preponderance of points of dissimilarity will go to show that I was unaware of the registration. I have not seen their carrier, but I should judge that, owing to its length, it was ill suited for lateral strains. I offer them my cross girder arrangement gratis.

Alluding now to letter No. 3268, I, too, am a possessor of a 5 h.p. twin (of well-known Continental make). I dismantled at 2,000 miles, and found everything in want of some attention or other. I rectified everything, and got more tune than I had had, but some readers may remember "Ixion" and my "twin-cylinder puzzle," how the front cylinder would not do its work.

I am writing now after a trial of the motor fresh from the hands of the makers, who have kept it some weeks, and charged me a fair price for what they have done. The motor has not been tested at all (the cleanliness of the valves, etc., proves this), and the cylinders are still as unsynchronised as ever they were. So that my twin has had all wearing parts replaced twice in 4,000 miles, and now is still unsatisfactory, although I think I can locate the fault. I am not "dissatisfied," but simply "disappointed."

I am looking out for the efficient two-speed gear, and then the popular 3½ h.p. single will gain one more supporter in the person of B. RICHARDSON BILLINGS.

Air Cooling.

[3326.]—We have read a lot lately about the question of overheating of air-cooled engines, but to me the principal question seems to have been overlooked. The whole problem as I look at it is, "Are air-cooled engines efficient?" and although I expect there are a good many who will be ready to contradict me I venture to say they are not.

Having made such a statement I expect you will want me to justify it, and, although I may not state my case as concisely as some might desire, the whole thing to me appears to be quite clear. Without seeking to introduce the laws of any of the dear departed gentlemen who have been quoted by some whose letters you have printed, and which are not understood by very many readers, I will endeavour to show what I mean in as simple language as possible.

It is pretty generally known that all the engines at present fitted to motor cycles only develop their stated horse-power, whether it be 1¾, 3½, or 5 h.p., at an engine speed of about 2,000 revolutions per minute. And it is also common knowledge that that engine speed is very rarely attained on the road (or should be), and the reason is that the speed that would be attained by the machine would have passed the average limit of ordinary safety.

For instance, a motor cycle with a gear of four and a half to one and with 26in. wheels would travel 34.3 miles per hour, and with 28in. wheels 37 miles per hour. Now, as the average speed of a motor cycle on a long run would be somewhere about half these speeds, it is self-evident that for about ninety to ninety-five per cent. of its running time the engine is only turning at the speed of about 1,000 revolutions per minute, and at that speed it would only develop a little over one-half its rated power. That is to say, that only for from one-twentieth to one-tenth of its running time does a 3½ h.p. engine give off more than about 2 h.p.

I do not want the lightweight advocates to shout out that this is where the lightweight low-power machine shines, because they are in exactly the same condition, the same thing applying equally to different powers. This being the case, and the full power being required so seldom, the question arises, "How long would any of the engines at present running on the road give their actual rated horse-power at 2,000 revolutions per minute without becoming unduly (not over) heated if geared to travel at about seventeen miles per hour?" or, on the other hand, how long are they run on the test bench at 2,000 revolutions per minute? I know that test bench conditions do not prevail on the road.

Now, I contend that what we require is an engine that will develop its rated power for any length of time without artificial methods of cooling and without coming to a stop, as at the present time everything appears to me to point to the inefficiency of and inability of our present engines to cope with their task for any length of time when working up to their full rated power.

I am not in a position to suggest any remedy at present, but it appears to me that we are at present carrying an engine about twice as big as we require for the work to be done except for less than one-tenth of the running time, and then it is only a question of gear and speed for that one-tenth.

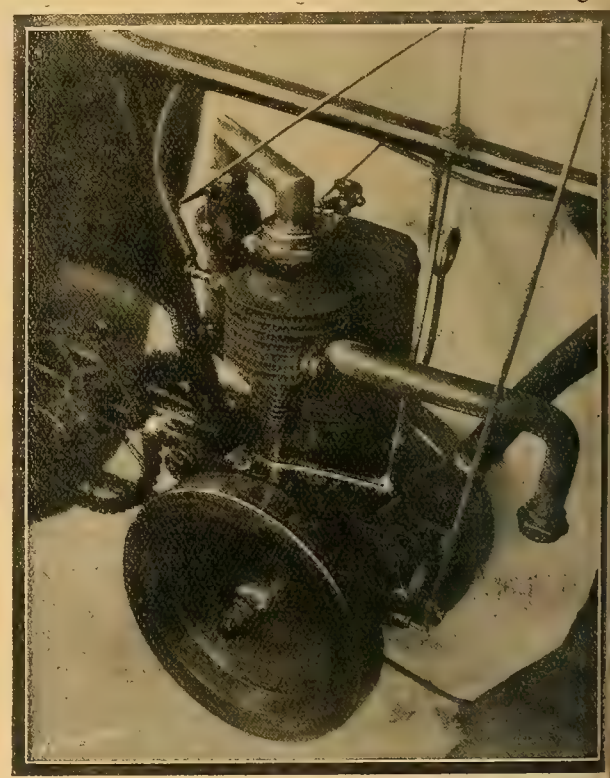
If I am wrong in what I have stated, kindly correct me, and also explain how an air-cooled engine under present conditions is efficient. SCOTIA.

Unattached Riders.

[3327.]—As a motor cyclist and constant reader of your paper, I beg to thank you for your persistent efforts in securing the council of the A.C.U. to admit unattached riders into their care. I thought of a 10s. subscription, same as the Motor Union, of which I am a member, but you have gone one better with 5s. I should now like to see the A.C.U. promote an insurance policy on the same lines as the M.U. I have not written your paper since the discussion began because I was heartily sick of it. I had already spoken to Messrs. F. Straight (the secretary), A. Sharp, and others on this matter, but they declined to entertain it. I will not waste your time further, but again thank you for your determination. J. M. BUTLER.

Outside Flywheels.

[3328.]—Having been a reader of your valuable paper for three years, I have read with interest the various topics contained therein. I am greatly interested in the discussion on outside flywheels, as my machine had one outside flywheel weighing 14½ lbs., which worked exceedingly well up to a speed of twenty-five miles per hour; over that speed I could feel the need of a much heavier wheel, so I decided to have



An engine with two outside flywheels referred to in the accompanying letter.

two outside flywheels fitted. I have done so, and I can assure your readers it has answered my expectations to the full. I fully endorse the remarks of Mr. A. J. Atkings, both in regard to power and balance, and he will see that there is at least one, although not a recognised maker, that has not only attempted, but has accomplished the fact. I should be pleased to give any of your readers further particulars.

JAMES TUNNICLIFFE.

[Several interesting letters are unavoidably held over.—ED.

MOTOR BICYCLES FOR SALE.

ANTOINE, 4 h.p., splendid condition; a bargain, £17 10s.—Below.

ALLDAYS Traveller, 5½ h.p., two speeds and reverse, splendid condition; £35.—Sanders, Spring Gardens, Buxton.

F.N., 1¾ h.p., new 1907, perfect condition; £25.—George Potter, Stamford.

MOTOR Cycle; £5; push bike part exchange.—663, Old Kent Road, S.E.

1908 1¾ h.p. F.N., new; £28, lowest.—G.S., 10, Mansfield Road, Hampstead, N.W.

ANGLIAN Motor Cycles with simplest and most practical two-speed gear.—Below.

DOUGLAS Twin Motor Cycles, the marvellous lightweight; also

SIDECARS (Mills-Fulford castor wheel), and a special selection of second-hand bicycles and tricars can be seen and tried at the London agents, H. P. Rose, Ltd., 28, Frith Street, Shaftesbury Avenue, W.

2½ h.p. Minerva, Eadie, Dunlops, spray; £10.—53, Grange Park Road, Thornton Heath.

TRIUMPH, 1908, 3½ h.p., magneto; £42.—James, 9, Hampton Street, Walworth, London.

1¾ h.p. Minerva, wants a little touching up; £3 10s.—139, Great College Street, Camden Town.

FOR Sale, Singer Motor Cycle, belt driven, as new; £28, no offers.—Dormer, Surveyor, Chesham.

WHIPPET Motor Cycle, 2¾ h.p. F.N., good condition; £9. — 40, Northborough Road, Norbury.

REX, 3¼ h.p., 1906, splendid condition; £13; after six.—Miller, 39, Hawkstone Road, Rotherhithe, S.E.

2 h.p. Clement-Garrard, in splendid going order, new tyres; £5.—S. Goldstraw, London Road, Derby.

MINERVA 2 h.p. Motor Cycle; any trial; price £8; no dealers.—Luce, 27, Chancery Lane, London.

5-6 h.p. Twin Rex, spring forks, guaranteed; only £18 10s.—Garaged, Hardy's, Carlton Street, Halifax.

2½ h.p. Brown, good running order, tyres (Dunlop) nearly new; £10.—28, Howard Road, Walthamstow.

QUADRANT, 3½ h.p., 1906, reliable, ready for the road, tyres nearly new; £20.—Penfold, Beaconsfield.

£5.—Quadrant, 1¾ h.p., spray, good running order; a bargain.—Goddard, Glensmore, Sutton Lane, Chiswick.

3½ h.p. Triumph, magneto, variable pulley, very little used; £31.—Scrase, 234, Battersea Park Road, S.W.

3½ h.p. Excelsior; £15; in good condition, Clincher tyres 26 by 2.—Logsdon, 6, Nelson Road, Whitstable.

1907 3½ h.p. Triumph, in excellent condition; £33, carriage paid. — N. Orr, School Lane Mill, Preston.

TRIUMPH Motor Bicycles, 3½ h.p., 1908 models, from stock; no premium.—Tom Norton, Llandrindod Wells.

4 h.p. Antoine, magneto, excellent condition, stand, horn, £18; Osborne four-speed. £3.—Rev. Cooper, Barnet.

IMMEDIATE Delivery, new 1908 Phelon and Moore, two-speed, Palmer tyres.—Potter, Agent, Blenheim Square, Leeds.

2¾ h.p. De Dion Engine Motor Cycle for sale through illness; £19 10s.—Green, Berry Villa, Great Barford, Beds.

TRIUMPH for sale, perfect; wanted, 1¾ h.p. Minerva cylinder. — Motor, Albany House, Lower Bristol Road, Bath.

2¾ h.p. Brown, everything in good condition, all accessories; trial given; £8 cash.—51, Richmond Road, Ilford.

FOR Sale, 2¾ h.p. Werner, 26in. wheels, good running order, £9; Fuller's charging set, £1; bargains.—Friskney, Baumber.

3½ h.p. Fafnir, Chater-Lea frame, Osborne speed pulley and free engine; £16.—Mason, 18, Albert Road, Stroud Green, N.

2¾ h.p. Beeston Humber, free engine, splendid condition, take two anywhere; bargain, £16 16s.—12, Claremont Hill, Shrewsbury.

BOOTH'S
HIGH-CLASS STOCK.

£6 and a 3¾ h.p. Rex or decent machine of other make secures a splendid 6 h.p. Twin Rex, low built.

£5 and your high built machine secures a low built 3½ h.p. Rex.

TWIN N.S.U., magneto, two speeds	£30	0
1¾ h.p. F.N. Lightweight, 1908	31	0
2¾ h.p. REX Lightweight, 1908, nearly new	23	0
5¾ h.p. REX DE LUXE, shop soiled, twin tyres, magneto, Roc clutch.....	35	10
3½ h.p. ARIEL M.O.V., 26in. wheels	14	14
2 h.p. MOTO REVE, magneto, 1908	33	0
5½ h.p. TWIN N.S.U. magneto.....	29	0
3½ h.p. TRIUMPH, new (1908)	48	0
3½ h.p. TRIUMPH (1907)	35	0
5¼ h.p. TWIN VINDEC, magneto.....	33	10
6 h.p. TWIN REX, fitted with new 8 guinea Millford sidecar.....	25	10
5½ h.p. REX DE LUXE, Roc clutch, magneto, twin tyres	27	10
5½ h.p. TWIN REX, black finish	22	10
3½ h.p. REX, magneto, speed pulley	18	18
5½ h.p. TWIN REX, magneto, spring seat	23	10
3½ h.p. REX, spring forks, low built	15	15
3¼ h.p. REX, 50 guinea model	10	10
4 h.p. ROC, 1907, magneto, clutch	30	0
4 h.p. ANTOINE, M.O.V., low built	14	14
Four-cylinder F.N., magneto	23	10
3 h.p. HUMBER, free engine.....	11	10
2¾ h.p. ARIEL Lightweight, 26" wheels..	12	12
3½ h.p. EXCELSIOR, 26" wheels	11	11
3½ h.p. TRIUMPH, 1907	35	0
6 h.p. TWIN ANTOINE, like new	22	10
6 h.p. TWIN ANTOINE sets, new	19	19
5 h.p. TWIN KERRY, smart machine..	22	10
5 h.p. TWIN G.B., magneto, spring forks	25	10
3¼ h.p. N.S.U., magneto, 2¼" tyres	22	10
3½ h.p. MINERVA, very smart	16	16
3½ h.p. CHATER-LEA, vertical engine ..	13	13
3½ h.p. QUADRANT, brand new (1908),	42	0
2¾ h.p. KERRY, tyres like new	11	10
2½ h.p. KERRY, low and smart	10	10
3 h.p. HUMBER, free engine	11	10
3 h.p. ARIEL, 26" wheels, M.O.V.	11	10
2¾ h.p. ARIEL-MINERVA, low	11	10
3 h.p. WERNER, fitted Shaw engine ..	12	12
3½ h.p. WHITELEY, spray, good tyres..	8	15
3 h.p. CLYDE, M.O.V., magneto	11	10

LIGHTWEIGHTS. SPECIAL OFFERS.

3 h.p. BRADBURY, vertical engine	£10	10
3 h.p. PEBOK, vertical engine, low	10	10
2 h.p. MINERVA, M.O.V., 26in. wheels	8	10
2¾ h.p. SPARK, vertical engine, magneto	10	10
2¾ h.p. JAP, good tyres, reliable	8	15
3 h.p. CALVERT, vertical engine, low ..	8	15
2¾ h.p. DE DION, vertical engine.....	8	15
2½ h.p. SAROLEA, vertical, spring forks	9	15
2¾ h.p. DE DION, vertical, less tank	6	15
2¾ h.p. CENTAUR, enamel like new	8	15
2¾ h.p. MINERVA, vertical, low	9	10
2¾ h.p. MINERVA, grand condition	8	15
2¾ h.p. REX, vertical, spray	8	15
1¾ h.p. MINERVA, good condition	6	15
1¾ h.p. QUADRANT, very reliable	6	15
1¾ h.p. MINERVA, very fast	5	15

Push cycles part payment.

TRICARS.

5 h.p. HUMBER, W.C., open frame, wheel steering, two speeds	35	0
4 h.p. HUMBER, W.C., Phelon & Moore two-speed gear, coach built	18	10
4 h.p. TRENT, W.C., open frame, two speeds, wheel steering	18	10
4 h.p. DERRICK, coach built, free engine	16	16
4 h.p. REX, free engine, special engine..	17	17
3½ h.p. ROYAL SOVEREIGN, light	11	11
6 h.p. TWIN REX, forecarriage fitted, magneto, spring seat	27	10
3½ h.p. WHITE & POPPE, M.O.V., Kent three-speed gear	16	16

MOTOR TRICYCLES.

2¾ h.p. BEESTON HUMBER, good tyres..	£6	10
3½ h.p. AUTO MOTO, good order	6	10
Tricycle, less engine, two speeds, tyres	3	0

SIDECARS.

MILLS-FULFORD, rigid, like new	£6	10
MILLS-FULFORD, castor wheel	8	10
BRITISH STANDARD, rigid	4	5

ENGINES.

New 6 h.p. TWIN ANTOINE, complete ..	£8	5
Ditto, nearly new	7	10
6 h.p. AVON, W.C., up-to-date, M.O.V....	8	5
5 h.p. ANTOINE, M.O.V., nearly new, W.C.	8	5
2¾ h.p. NOBLE, M.O.V., vertical	3	5
2 h.p. MADISON, good order	1	15
1¾ h.p. MINERVA, inclined	1	10
4 h.p. EOC, M.O.V., magneto	9	5

Small engines taken in exchange.
High-class motor cycles wanted for cash.

H. BOOTH,
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HALIFAX.
Telephone 198Y.

MOTOR BICYCLES FOR SALE.

BOWDEN, 2¾ h.p. F.N., vertical, spray, very low, chain, handle-bar control; £8 10s.—Freak, Hazeldene, Hillside Road, Watford.

2¾ h.p. Minerva, excellent condition, new Palmer cord back, B100; £14.—R.W., 3, Grosvenor Gardens, Willesden Green, N.W.

3 h.p. Quadrant, spring forks, £10; 3 h.p. Hobart, £10; 2 h.p. Quadrant, £8; 1¾ h.p. Minerva, £6.—Gibbon and Co., Aberavon.

BARGAIN.—3 h.p. Bradbury motor cycle and fittings, just overhauled; £15 10s.—Irving, 1, Frobisher Terrace, Altofts, Normanton.

PHŒNIX Cob, 3½ h.p., two speeds, magneto, climb anything, excellent condition; £35, or near offer.—Dr. Gervis, Seaford, Sussex.

4½ h.p. Twin Minerva, with Ariel coupler and Rudge lady's bicycle, in good order, new tyres; lot £25.—Dall, Barrow-in-Furness.

£18.—Four-cylinder Binks, fitted synchronised ignition, pan seat, free engine, chain drive, faultless. — Rowell, New Inn, Windsor.

1907 Quadrant, 3½ h.p., excellent condition; £30, or near offer; ride 50 miles Manchester.—No. 9,900, *The Motor Cycle* Offices, Coventry.

QUADRANT, 1907, 3½ h.p., Birmingham model, good hill-climber, as new; bargain, £20.—Guyver, Wood Street, Stratford-on-Avon.

2¼ h.p. De Dion Motor Cycle, tyres as new, with spares and lamp; £2 and push cycle, or sell £3.—121, Shooter's Hill Road, Blackheath.

GENUINE 4 h.p. Bat, absolutely as new, spring forks and frame, low, powerful and reliable; £20; any trial.—Marsh House, Leominster.

FOR Sale, lightweight motor cycle, N.S.U., last year's make, magneto ign. in running order. — Hodgson, photog. Cleckheaton.

2½ h.p. Kerry, in splendid condition and going order; not done 100 miles; £13; no time for riding.—C.H.W., 28, Upper Clapton Road, N.E.

2¾ h.p. Werner, M.O.V., spray carburetter, accumulator ignition, free engine, good condition; £8 10s.—Richardson, Stonebridge, Horbury.

LADY'S Motor Bicycle, Singer, 2½ h.p., spring pillar seat, splendid condition; £15, inclusive speedometer.—S., 21, Duke's Avenue, Muswell Hill.

TRIUMPH, 3½ h.p., 1907, standard, magneto, perfect condition, heavy tread on back tyre; price £33, or offers.—No. 9,438, *The Motor Cycle* Offices, Coventry.

3 h.p. M.M.C., Chater-Lea frame, Longuemare, Continental tyres, low built, almost new; £18 18s.—A. J. Slatter, 59, Cranfield Road Brockley, S.E.

MINERVA, 2¾ h.p., Eadie frame, Palmers, Longuemare, Price's stand, first-class condition; £8 lowest.—V. Garrett, 57, Crystal Palace Road, Dulwich, S.E.

1 h.p. Lightweight, good serviceable machine, in excellent running order; £5 10s.; seen and tested after 8.30 p.m.—F.B., 53, College Street, Islington, N.

3¼ h.p. Rex, thorough condition, tyres perfect. Rich's back tube, tools and spares; owner purchased car; price £15, cost £50.—Clewer Court, Windsor.

4 h.p. Antoine, Chater-Lea, two accumulators, Dermatine, Brooks, 2¼ Gaulois, spares, stand; £13 10s.; after 6.—14, Clifton Park Avenue, Raynes Park.

MOTOR Cycle, genuine, 2 h.p., in good condition, good tyres, Chater frame; £8; this is not a crock.—Inglesent, 90, Wilmslow Road, Rusholme, Manchester.

MAGNIFICENT Twin Jap, 6 h.p., automatic carburetter, 5-40 m.p.h., perfect order; what offers? Seen by appointment.—Write, Richford, 294, Burdett Road, E.

4½ h.p. Twin Minerva, spring forks, magneto, Continental de Course tyres, back one new, splendid condition; £26 10s.—Mettham, Architect, Grantham.

N.S.U. and Roc Agent.—Several 1907 N.S.U.'s to clear at a low figure; write for particulars; no exchange entertained.—Hodgson, 19, Horton Road, Bradford.

MOTOR BICYCLES FOR SALE.

2½ h.p. Jap, Chater-Lea frame, torpedo tanks, footboards, engine as new, very fast; £12 12s.; property of J. Le Grand. — Seen at 16, Haverstock Hill, N.W.

LURQUIN-COUDERT, 3½ h.p., Chater throughout, Clinchers, Watawata, very low, long bars, B105, footrests; £20. — Boss, 1, Osborne Road, Weston-super-Mare.

2¾ h.p. Excelsior, M.M.C., perfect condition, unpunctured, new belt, and Bates' band, accessories; been well cared for; £11.—12, Cradock Street, Bishop Auckland.

1½ h.p. Clement-Garrard, two-speed gear, in good going order, Palmer tyres, splendid condition; £11, lowest. — Box No. 9,874, *The Motor Cycle* Offices, Coventry.

2½ h.p. Minerva Motor Cycle, 1907, puncture-less, ridden about 500 miles, spare belt, lamp, horn; £23, or nearest offer. — Goodhew, Manchester Road, Rochdale.

3½ h.p. Minerva, magneto, £15; 2¾ h.p. Beeston Humber, free engine, £15; rigid sidecar, £5; got car.—Rivers-Moore, 37, Kempsford Gardens, Earl's Court, S.W.

TRIUMPH, 3 h.p., 1906, ball bearing engine, petrol gauge, and every refinement, non-skid back, excellent condition, spares; £22, no offers.—111, Grove Lane, Camberwell.

LIGHTWEIGHT Genuine 1¾ h.p. F.N., 26in. wheels, 24in. frame, F.N. carburetter, spray, splendid condition, very fast; £9, lowest.—F., 62, Thames Street, Windsor.

MUST Sell Immediately.—2 h.p. Minerva, spray, everything in good condition; £9, or offers; appointment.—Motorist, Fairfield, Wells House, Openshaw, Manchester.

2½ h.p. Jap, Chater-Lea fittings, Longuemare carburetter, Palmer tyres, fast, very reliable, in splendid condition.—Burch, Leicester Villa, Leicester Road, New Barnet.

2¾ h.p. Aurora, in splendid running condition, vertical engine, Longuemare, trembler; £7 15s., bargain; photo sent for stamp. — Bennett, 91, Gosford Street, Coventry.

BARGAIN.—2 h.p. Minerva, in perfect running order, new engine, not done 500 miles, tyres as new; £11 10s., or nearest offer; seen after 7 p.m.—F. Palmer, 53, Highgate Hill, N.

1906 3⅜ h.p. Rex, spring forks, excellent condition, powerful, thoroughly reliable; sell cheap, or £12 and good push bike.—A.T.S., 86, Colvestone Crescent, Dalston, London.

TWIN Minerva, 4½ h.p., spring forks, new Palmer cord back, new accumulator, coils, belt; trial; splendid condition; 24 guineas; photo; smaller power part.—Bell, Wadsley Bridge.

3¼ h.p. Rex, 26 by 2 Longuemare, Prested, Shamrock, footboards and pedals, tools, stand, numbers, splendid condition, perfect; £13.—Sharp, Fleece Street, Buttershaw, Bradford.

5 h.p. Twin Peugeot, in splendid condition, low frame, plated tank, spring forks, 2½ tyres (as new); any trial; full particulars; great bargain at £23.—A. Bertram, Rothbury, Northumberland.

EDINBURGH.—Scottish readers, be sure not to miss our grand show of motor cycles. Stands 126 and 127, Industrial Hall, Scottish National Exhibition; 16 different makes shown by Alexander's Motor Exchange, 110, Lothian Road, Edinburgh.

EDINBURGH Exhibition, Industrial Hall, Stands 126 and 127; finest exhibition of motor cycles ever shown on any one stand, from May till October.—Alexander's Motor Exchange, Lothian Road.

EDINBURGH. — Vindecs, Quadrants, Rexes, Adlers, Moto Reves, Ariels, Zeniths, Minervas, Griffons, Nortons, N.S.U., Advances, Rocs, etc., in stock, and to be seen at Alexander's Motor Exchange, Edinburgh.

REX de Luxe, new November, 1907, in splendid condition, Roc clutch and Roc two-speed gear, Stevens silencer, handle-bar control, twin tyres; receipt can be shown showing cost £60 15s., accept £30.—No. 9,911, *The Motor Cycle* Offices, Coventry.

3½ h.p. Late 1907 Brown, hardly used, perfect, M.O.V., 26 by 2¼ Clinchers, Longuemare, Matchless silencer, frame 20in., Duco-Flex belt, Brooks B100, lamp, horn, spares, etc.; cost over £40, accept £24, lowest. —H., 24, High Street, Windsor.

Rubber and Canvas V Belting. Embodies all good points of other rubber belts without their drawbacks. "A distinct improvement."

NOTE.—The prices are between 33% and 50% less than other makes. **Good** rubber belts need not be dear. Send cash for sample length on approval. ⅝" **9d.**, ¾" **1/-**, ⅞" **1/4**, 1" **1/8** per foot. Any length cut. Fasteners **6d.** each.

CASH, CREDIT, or EXCHANGE.

4½ h.p. Twin MINERVA, magneto, and Nala two speeds	£32	0
2¾ h.p. ZEDEL, long and low	14	0
2¼ h.p. MINERVA, good condition	9	0
5½ h.p. REX DE LUXE, twin tyres, clutch	26	0
3½ h.p. REX, 22" frame	11	0
5 h.p. Twin KERRY, very low	22	0
5½ h.p. Twin REX, lovely goer	20	0
4 h.p. ANTOINE, magneto, 1907	22	0
3½ h.p. 1906 REX, spring forks, etc.	15	0
3½ h.p. 1905 REX, spring forks, 26" wheels	13	0
3 h.p. TRIUMPH, lovely goer	25	0
3 h.p. N.S.U., fine goer	16	0
3½ h.p. EXCELSIOR, smart	10	0
2¾ h.p. R & P., 26" wheels, vertical	10	0
3 h.p. CLARENDON, good, vertical	10	0
3½ h.p. AUTO-MOTOR, spray, vertical	10	0
2¾ h.p. GRIFFON, spray, vertical	10	0
3 h.p. NOBLE, spray, vertical	10	0
3 h.p. REX, vertical	10	0
2¾ h.p. HUMBER, spray, trembler	10	0
1¾ h.p. MINERVA, spray, 26" wheels	6	10
2 h.p. QUADRANT, spray, smart	7	10
2½ h.p. HUMBER, spray	9	0
2½ h.p. REGAL, vertical, spray, 26" wheels	9	0
2¼ h.p. CYCLONE, spray, vertical	7	0
2 h.p. MINERVA, M.O.V., 26" wheels	9	9

ALBION V BELTING.

New principle longest life.

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5½ h.p. REXETTE, spring frame	£35	0
5 h.p. REXETTE, two speeds	29	0
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Forecar attachment, long side stays, 28in. wheels, **£4 10s.**

NEW TYRES FOR OLD.

Genuine Continentals.	Cover.	Tube.	Genuine Continentals.	Cover.	Tube.
26 × 2	24/-	9/6	28 × 2	25/-	10/-
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For 24", 26", or 28" wheels. **4/9** per pair.

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Albion Works, Square Road, HALIFAX.

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The "MABON" FREE ENGINE PULLEY AND CLUTCH.

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Agents: The Service Co., 292, High Holborn, W.C.

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Exhaust Valves, *"Non-Corrosive" special nickel alloy,* **2/6. Piston Rings** *(three),* **2/3. Reboring and New Piston, 14/-. New Cylinder, 27/-. Variable Pulley, 8/6. Gears Cut. Rebushing. New Parts. Patent Fans. Spring Forks,** *front or rear.* **Rests, Silencers, Gears, Magnetos, Plugs, E.I.C. 4/1. E.K. 2/1. Our list will aid you if in trouble.**

THE MARCH MANUFACTURING CO., 68-72, CLIFFE ROAD, SHEFFIELD.

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3½ h.p. Genuine Minerva, plating, enam ling, belt, tyre, accumulators, new, spring forks, many spares; ca wanted; sacrifice £18. — Write, Beadle, 1 Powis Street, Woolwich.

3½ h.p. Centaur, chain drive, long ba brakes, Palmers, switch handle, sta carrier, friction clutch, two accumulato lamp, and spare valve; £20.—Bert. Hanna 3, Ridgeley Road, Harlesden.

3¼ h.p. De Dion, Chater 5a frame, 26 wheels, Continental and Clincher, t tanks, nearly new; owner giving up mot ing; seen by appointment; £22, or offer.— Lewis, Colville Road, Leyton.

N.S.U., magneto, 4 h.p. twin (2¼in. tyr 1in. belt, new), 1907 model, tools, 2 wheels; £35, or exchange for 6 h.p. N.S. twin, accumulators, and cash.—Motorist, Clarendon Road, Redland, Bristol.

GENUINE Bargains.—Motor Cycle, 2 h.p. F.N. engine, scarcely used, £ Mills and Fulford forecarriage, in perf order, £3 10s.; Osborne variable speed ge not used, £3.—Hill and Co., Galway.

1907 3½ h.p. Quadrant, absolutely perfe spring forks, exceptionally good gine, starts walking pace, wonderful chine; absolute bargain, £25.—Motorist, Colvestone Crescent, Dalston, London.

£9.—3 h.p. Ormonde, Antoine engine, ac mulator and dry cell ignition, two-s switch, new tyre, tube, and belt, sp valves and belt, fast, reliable machine Byron, 168, Telford Avenue, Streatham.

3½ h.p. M.M.C., low, powerful, perfect ord just overhauled, spring forks, rub belt, tyres nearly new, spares, tools, ve cal engine, cut-out; bargain, £11 10 Williams, 55, Strathleven Road, Brixton

2¾ h.p. Minerva, on genuine B.S.A. fra and fittings, Palmer tyres, li used, also Mills-Fulford trailer, compl with lamp and numerous accessories; 18s.—Goodman, 76, King's Road, Chelsea, S

QUADRANT, 3½ h.p., little used, and alm equal to new, tyres perfect, £22 10s. offers; also 2 h.p. Quadrant, in thoro going order and fair condition, £8 10s., near offer.—W. F. Sneezum, Fore Street, wich.

5½ h.p. N.S.U., not been 200 miles, magn spring forks, 26in. wheels, non-s tyre back wheel, Wright's footrests, Shar silencer, long handle-bars, and many spa lowest £37 10s. — N. Dodd, Woldingh Surrey. Garaged at Wauchope's.

1908 Roc, Royal Military Model, ball b ing engine, clutch, two-speed g spring forks, luggage carrier, been under 500 miles; £36 10s.; complete, s belt included; cost over £53 end of Fe ary.—Below.

1907 5-6 h.p. Twin Roc (Peugeot engi clutch, two-speed gear, complete Roc sidecar, brand new back Contine cover and tube, other two nearly same, s valves, etc., inner tube, luggage carrier; ideal lot, good as new in every way, £36 only wants seeing; any time.—Hurlock, 70, Walworth Road, London (Elephant Castle). 'Phone, 14942 Central.

NOW or Never? — 45s. deposit and monthly payments of 29s. secures ei 3 h.p. Humber, 3 h.p. Noble, 3 h.p. Rex, 3 Clarendon, 3 h.p. Excelsior, 3 h.p. Autom 2¾ h.p. R. and P.; delivery on first payn —Farrar, Square Road, Halifax.

2¾ h.p. F.N., spring forks, non-skid t two accumulators, spray carbure Chater-Lea frame and fittings, with a sories, recently overhauled for Easter, also new motor house, £1 15s.—Apply 6, Randall, 179, Mount Pleasant Road, tenham.

6 h.p. Bat, Jap spring frame and f special brakes, Jap lubricator, clipse lamp, two new belts, studded t perfect condition, full kit tools and sp not done 2,000 miles; owner bought car; —Humphrys, 6, Comberton Terrace, Ki minster.

N.S.U. 4 h.p. Twin, and Mills-Fulford c wheel sidecar, two-speed gear, s forks, magneto, powerful hill-climber, anteed in absolutely perfect condition; £70, accept £37 10s.; will run 50 for pro tive buyer.—Box 9,907, *The Motor Cycle* O Coventry.

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DOUBLE-CYLINDER, spring frame back and front, 4 h.p. Alcyon engine, Brown and Barlow carburetter, new; £38.—H. Monk, 91, Portobello Road, W.

3 h.p. Fafnir, Palmers, footboards, Brooks B100, guaranteed, faultless; £15 10s.; exchange light tricar, cash adjustment.—87, Hildmay Grove, Islington, N.

1908 3½ h.p. Magneto Tourist Rex, new; why pay fancy prices? 35 guineas; exchanges.—16, Westgate, Halifax.

1911 h.p. Antonio, low frame, Longuemare 1912 carburetter, Palmer tyres; worth seeing; £16.—Squire, 122, Hackney Road, London.

FOR Sale, Triumph, 1908, perfect in every detail, complete with horn, lamp, numbers, and spares; price £40; any test.—F. Hewett, Shenley Road, Dartford, Kent.

1907 Two-speed Vindec Special, 3½ h.p., magneto, perfect condition; bargain, £27; garaged Wauchope's.—White, Danesbury, Wilmington Terrace, Eastbourne.

1908 Triumph, magneto, new, all the latest improvements; delivery now; £48; exchanges.—16, Westgate, Halifax.

3 h.p. Motor Cycle, wants new induction 4 pipe and throttle; a bargain for handy man; first £5 5s. has it.—Mower, 30, Spring Gardens, Buxton.

h.p. Fafnir, Dunlops, Longuemare, two accumulators, horn, stand, carrier, toolbag; exchange push bike and cash, or sell £14.—94, Clifton Crescent, Peckham.

STOP!—2½ h.p. Jap, B.S.A. throughout, F.N., new Dunlops, handle-bar control, top saddle to ground 34 inches, stand, lamp, horn; 11 guineas.—339, Brixton Road, S.W.

TWIN Rex, 5-6 h.p., magneto, 2½ Continental, cantilever seat, not been ridden 200 miles; too fast for owner; accept £25, or near offer.—Bateman, hairdresser, Marlow.

3 h.p. Royal Enfield-Minerva, in splendid 4 condition, and a grand goer; £13 10s., or exchange entertained for push bike and cash.—9,921, *The Motor Cycle* Offices, Coventry.

TWIN Rex, winner hill-climb, Stanley new belt, spare Whittle, Fuller coil, electric horn, thumbslide control, stand, spares, splendid; £18.—C. Lloyd, Shirburn, Ramsgate.

TERRY 6 h.p. Twin, long bars, footboards, A low position (very fast), £19, no offers; Peugeot, 2½ h.p., splendid machine, only wants seeing, £9 15s.—37, Chestergate, Stockport.

3 h.p. Excelsior, inclined engine, recently 4 overhauled, low built, Clincher, two accumulators, stand, etc., splendid condition; £10.—Woffenden, Hazel Grove, Stockport.

1 h.p. All-Peugeot Motor Cycle, spring 2 forks and seat, Palmer and Continental tyres, rubber belt, excellent condition; bargain, £21, no offers.—1a, Torbay Road, Kilburn.

1908 3½ h.p. Rex, magneto, tourist model, new, not ridden 50 miles, a splendid machine, cannot be beaten; £27 10s. for quick buyer. — Beesley, 5, Russell Street, Accrington.

1 h.p. Matchless-Minerva, inclined engine, 2 the whole re-enamelled and plated, equal to new; to be sold a bargain; what offers?—Seen at Sentinel Works, 62, New Cross Road, S.E.

1 h.p. Minerva, Chater-Lea, and sidecar, 2 Phœnix two speeds, very low, fast, 26inchers and studded non-skid tyres, almost new, guaranteed; £22 10s.—221, Summer Lane, Birmingham.

1907.—5 h.p. Twin Rex de Luxe, Roc clutch, everything as new, tyres (twin), enamel unscratched; owner ill five months reason selling; first cheque, no offers. — 17, James Road, East Grinstead.

h.p. Twin, R.O.M. ignition, Montgomery sidecar, flexible or fixed; £25 10s., or exchange lower power and cash; sell separate, by appointment; photo 3d.—B., 306, Commercial Road, Peckham.

1907 3½ h.p. Rex, fitted with long footboards, retaining use of pedals, two accumulators, two belts, Brooks saddle, complete spare parts, Millennium stand, separate generator lamp, toolbag, and tools, number plates, etc., had very little use; given riding; £21, cost over £30.—Alfred Bennett, Mayfield Road, Wallasey.

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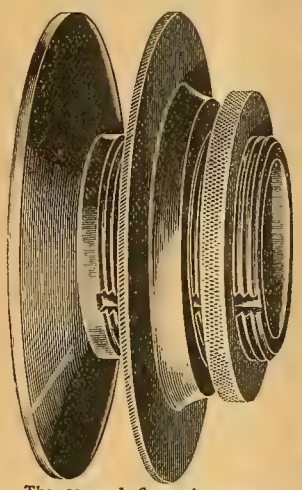

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Patent Locking Device.

The screwed flange is securely held in any position by a simple, yet ingenious contrivance. Send your old pulley. Quick delivery. Special terms to the trade.

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NON-TREMBLER. MIDGET TYPE.		SYNTONIC TREMBLER. 3,000 revolutions.	
One cylinder	10/6	One cylinder	17/6
Twin cylinders ..	21/-	Twin cylinders ..	35/-

We make a liberal allowance for your troublesome coil in part payment. Buy a FULLER and your misfiring troubles are over.

New Accumulators for Old.

	Large stock.		Genuine Fuller's.
C2 type	17/-	Midget type ..	16/-
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Every cell guaranteed.

Patent non-corroding terminals. Made to withstand the vibration of a motor cycle. Large stock. Quick delivery. We allow 5/6 for your old accumulator in part payment.

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WE ARE WANTING

Rex de Luxe, 3½ h.p. Magneto Rex, Triumph, 4 h.p. Roc, Jap, Bat, Gramophone, Sidecar, Ladies' Gold Guard, Bangle.

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MOTOR BICYCLES FOR SALE.

1906 2¾ h.p. Brown, brand new condition throughout, absolutely equal to new; expert examination invited; thundering bargain, £17.—Stanton, 86, Colvestone Crescent, Dalston, London.

5 h.p. Twin Sarolea, Chater-Lea long frame, 2½ Palmer cord tyres (not scratched), petrol gauge, etc., everything in perfect new condition; will accept first reasonable cash offer.—Makins, Enfield Lock.

F.N., 1¾ h.p., lightweight, late 1907, magneto, everything as new, splendid hill-climber, spares, not run 400 miles; £25; wanted, 1907 Phœnix or Zenith forecar, magneto.—Morgan, Mona View, Port Dinorwic.

REX, 3 h.p., Watawata, Brown-Barlow, new piston, rings, bushes, tyres excellent, £12; also Millford forecarriage, steering column and stays, Palmer cords, cane chair, apron, £7.—94, Hainault Road, Leytonstone.

ROC, 1908, 4 h.p., new Military Model, just delivered, unridden, Truffault spring forks, magneto, free engine and speed gear, lamp, horn, etc., exactly as delivered by makers; £45.—Hopkins, New Street, Ledbury.

9 h.p. Spring Frame Bat, all tools, spares, cover, two tubes, large headlight, electric lamp, whole machine entirely re-built last March so practically new; best offer over £40.—Gilmour, 18, Ampthill Road, Bedford.

TWO Splendid Triumphs, 3½ h.p., magneto, 1907. £31; and 3 h.p. (late), 1906, £21; both perfection of workmanship.—Rev. Spalding (garaged), Cox and Duffin, West Kent Garage, Sydenham Road, Sydenham, S.E.

APPROVAL.—5 h.p. twin Alcyon, spring forks, 1907 machine, £19 10s.; 2¾ h.p. Minerva, £11 10s.; 3½ h.p. Quadrant, 1907 machine, little used, £24; exchanges; wanted, twin Rex.—Smith, Ford Street, Saint Mary, Nottingham.

TRIUMPH, 3 h.p., accumulator ignition, only done one season's running, as owner has had car, guaranteed perfect in every detail; any examination; £21, no offers, no exchanges.—Cammack, Westgate, Grantham.

3 h.p. Bradbury, Longuemare, Bassee-Michel coil, Clinchers, grand hill-climber, perfect running order, just overhauled, detachable air tube, many spares; trial; £14 10s.—Cockerill, William Street, Heywood, near Manchester.

ROVER, 3 h.p., good running order, splendid condition, little used, rubber belt, 2¼in. Clinchers, B100, large set tools, all accessories, including Acetyphote lamp, iron stand, etc.; £18, or near offer.—C. A. Chubb, 128, Queen Victoria Street, E.C.

3½ h.p. Triumph, magneto, in perfect condition, frame beautifully lined in green and red, and unscratched, 1908 bars, all spares, 1908 pedals, and variable pulley, a really handsome machine; £34.—O'Hagan, 148, Duke's Avenue, Muswell Hill.

WERNER, 2¾ h.p., long, low, spring forks, re-enamelled and plated, new Continental tyres and belt, two accumulators, new 25s. lamp, spare valve springs, plugs, and all tools, in perfect condition; £16.—Cady, 47, Stamford Road, Handsworth, Birmingham.

4 h.p. Antoine, accumulator ignition, Dunlops, with Rich tubes, unpunctured, one spare Rich, non-skid on back, footrests, Dermatine, lamp, horn, tools, etc., all in good condition, and first-class going order; £16 10s.—Bennett, 298, Ewell Road, Surbiton, S.W.

3½ h.p. Quadrant, 1906 pattern, but very little used, and as new, enamel and plating perfect, spring forks, tyres unscratched, very fast, and splendid hill-climber, with all spares, stand, etc.; price £25 no offers.—G.G., 34, Cambridge Place, Paddington, W.

EDINBURGH. — Alexander's Motor Exchange, 110, Lothian Road, the largest variety and stock of motor cycles in Scotland; agents for Quadrant, Griffon, Rex, N.S.U., Adler, Roc, Minerva, Vindec, and Moto-Reve motors; repairs, spare parts; exchanges, easy payments.

MINERVA and Rex. — We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

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MERTON.—5½ h.p. N.S.U., twin, magneto, grand condition.—Below.

MERTON.—2¾ h.p. Minerva, low, with long bars, very racy mount; £14.—Below.

MERTON.—2 h.p. Minerva, splendid running order; £7 10s.—Below.

MERTON.—3 h.p. F.N.; bargain, £15.—Below.

MERTON.—For full particulars of above machines and any others that may be required, apply, Grove Motor and Cycle Works, 141, High Street, Merton, S.W.

NEW 1908 Phelon-Moore, Grose non-skid; giving up motoring; cash; £43.—8, Oxford Road, Southport.

3½ h.p. Kerry, 1907, spring forks, Watawata, Palmer, Clincher, new condition; £16.—20, Olive Road, Cricklewood.

LEEDS.—3½ h.p. Hobart, White and Poppe engine, 2¼ tyres, machine like new, long handle-bars, seat low, spring forks; £19.

LEEDS.—2¾ h.p. New Hudson, good order, Palmer tyres, 26in. wheels; £13.

LEEDS.—2¾ h.p. De Dion, low frame (Chater-Lea), long handle-bars, footrests; only £13 10s.; exchanges entertained.—Leeds Motor Exchange, 28, Dock Street, Leeds.

1½ h.p. Lightweight Wolf Motor Cycle, weight about 70 lbs., as new; £15 10s.—Wauchope's, 9, Shoe Lane, E.C.

2¾ h.p. Ariel, equal new, twin accumulators, tyres and belt new; 19 guineas.—Longden, Princess Street, Mansfield.

5 h.p. Twin Peugeot, Chater-Lea, splendid machine, as new, not done 500; £28 10s.—128, High Road, Tottenham.

3½ h.p. Twin Werner, low machine, long bars, only soiled, and in beautiful order; £17 10s.—Above address.

3⅜ h.p. Rex, spring forks, Continentals, as new, grand goer; £15.—Address above.

3 h.p. Trent, Chater-Lea, long bars, low seat; a genuine bargain, £11 10s.—Address above.

2¼ h.p. Humber, Longuemare, almost new, grand hill-climber, long bars, etc., guaranteed; £8 10s.—Address above.

3¼ h.p. M.M.C., low-built, Chater-Lea frame, thoroughly done up, as new, very powerful and fast; real bargain, £12 10s.—Address above.

3½ h.p. London, Chater-Lea frame, handle-bar control, accessories, very fast and powerful, splendid condition and perfect working order; great bargain, £11 10s.—Address above.

5 h.p. Twin Hamilton, B. and B. carburetter, very fast and powerful, perfect condition, grand for passenger work; £17 10s.—Address above.

3½ h.p. Fafnir, Chater-Lea, splendid condition, reliable, Palmer tyres; £15 10s.—Morley, 85, Alderson Road, Liverpool.

3 h.p. Triumph-Fafnir, accumulator, splendid condition; £16.—18, Ferncliff Road, Sandringham Road, Dalston, London.

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London.

1907 Shop-soiled 4 h.p. Roc Cycle for sale; ill-health and too powerful cause of sale.—Harrison, Implement Works, Pocklington.

7-9 h.p. Peugeot, twin-cylinder, specially built, very fast, suit Brooklands, as new; £32 10s.—255, Earlsfield Road, Wandsworth.

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2¼ h.p. Minerva, just overhauled, splendid order; sacrifice £6 10s.—Francis, Newsagent, Brentwood.

5 h.p. Twin Vindec Special, magneto, used for trial purposes, B. and B. carburetter; £25, sound bargain.—Wauchope's, 9, Shoe Lane, E.C.

5 h.p. Twin-cylinder Vindec Special, Phelon and Moore two-speed gear, Truffault forks, magneto ignition, certain to give satisfaction; gem for passenger work.—Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

You can start easily, climb any hill, crawl in traffic, and do 101 things you can't do now if you fit your bicycle with the

Phœnix Two-speed Gear.

£7 10s. to £8 15s., Belt or Chain. Up to 5 h.p.

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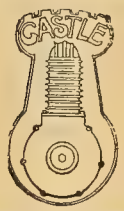

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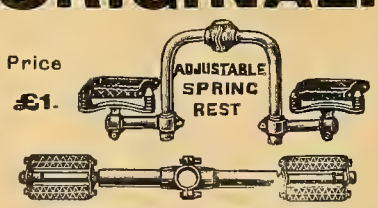
Price £1.



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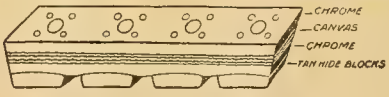
A. C. WRIGHT, 5, LORRIMORE BLDGS., WALWORTH.

EXCELLENT.

C.A.C., Croydon, writes under date 29-4-08: "Dear Sir,—You may like to know that I have put the 1in. new pattern Centipede Belt to hard tests and I am thoroughly satisfied with it. Its non-stretching, gripping, and flexible qualities are very excellent"

C.A.C. rides a 4½ h.p. Single-cylinder Motor Cycle.



Price of Belt per foot:
⅜ 1/6, ½ 1/9, ⅝ 2/-, 1 2/3, 1½ 2/6.

Special Terms if desired—half the amount with order and the balance in three months if satisfactory

POLLIN, Belt Maker, SPALDING.

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2¾ h.p. Minerva, better than new, £20 gent's Humber tandem, £10, perfect exchange for 1907 Triumph, cash adjustment.—Percy Maltby, Ilkeston.

2¾ h.p. R. and P., in splendid condition low saddle, long bars; cost £45, accept £14, or exchange higher power.—2 Beech Hall Road, Higham's Park.

2¾ h.p. Kerry de Luxe, low, perfect condition, new Continental, Grack, speed indicator, two lamps, stand, spares; £13.—147, High Road, Wood Green, London.

3½ h.p. 1907 Minerva, spring forks, very powerful, and in excellent condition, £19 19s.; unprecedented opportunity.—A. Wauchope's, 9, Shoe Lane, Fleet Street, London.

6 h.p. Rex, 1907, like new, thoroughly overhauled, enamelled; cost £64, sacrifice £30; accept lower power and cash, Triumph, De Dion preferred.—Brambledene, Eaton, Norwich.

3 h.p. Chater, F.N., Palmers, three Bowdens, complete machine, low built, £20 cash; ride 100 miles prospective purchaser.—Appointment to, Machine, 5, Copti Street, Bloomsbury, W.C.

3½ h.p. Minerva, 1907, magneto, spring forks, Palmer cords, not ridden 30 miles, whole machine as new, too fast for owner; £28.—A. Roberts, 291, Green Lane, Finsbury Park, London, N.

5 h.p. 1907 Twin Rex, fine condition, just overhauled, new tyres, stand, lamp, tools, spares, including inlet and exhaust valves; £26, or nearest offer.—E. C. Barnard, Downing College, Cambridge.

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1¼ h.p. N.S.U., high tension magneto, Price's stand, new end of last season, condition as new, fast and reliable; can be seen and tried any time; £22.—L. S. Robert, N. Somercotes, R.S.O., Lincs.

3¼ h.p. Rex, 26 by 2, variable gear pulley, Whittle belt, Bowden's handle-bar control, Brooks saddle, tools, spares, stand, splendid running order; approval; £10 10s.—17, Baxter Avenue, Doncaster.

A THOROUGHLY Reliable 3½-4 h.p. Motor Cycle and sidecar, everything capital order, Jap engine, long bars, footboards, no trouble; 20 guineas, quick sale.—Wm. Arcard, Touchen End, Maidenhead.

MOTOSACOCHE, perfect condition; an expert examination; spring forks, stand, carrier, puncture band on back; tra needed; sacrifice £25.—Reliable Poultry Farm, Canewdon, Rochford, Essex.

REX, 3⅜ h.p., recently overhauled, new belt, tubes, tyres (extra heavy Clincher rear), Osborne four-speed, footboards, spare, splendid condition; £16 10s., or offer.—Wade, Laurels, Carshalton Grove, Sutton.

BAT Motor Cycle, 7-9 h.p., two cylinder, free engine, 1907 model, little used, and fitted regardless of cost, many spares, complete with sidecarriage; £40, part exchange entertained.—Bedwell, Cherryhinton Road, Cambridge.

2¾ h.p. Kerry, perfect, new tyres, £13; 3½ h.p. Humber, new frame and tyres, £12 10s.; 2 h.p. Quadrant, running order, £6; 3½ h.p. Rex, good running order, £9; 2 h.p. Werner, £5 10s.—Colville Works, Linden Arcade, Chiswick.

QUADRANT, 3½ h.p., 1906-1907 pattern, not ridden 500 miles, condition as new, together with about £5 accessories; price £10 10s., cost £50.—Particulars, owner, York Villa, Carshalton. Seen at Hunt's Stores, New gate Street, London.

FULL of all the good qualities necessary to make a perfect motor cycle is the four-cylinder F.N., not a machine to go 50 miles an hour, and —— but goes comfortably all the time, whether it be 4 or 40.—For particulars, trials, etc., write F. Heath, Salford Priors, Evesham.

TWIN Minerva, late 1907, 4½ h.p., R.O.M. ignition, perfect, as new, cost £42, accept £27 10s.; Mills and Fulford sidecar (1 guinea), Palmer cord tyre, all perfect, £ 18s., or exchange for good tricar; trial required and given.—Willmer Taylor, 35, Eland Road, Walthamstow.

TRICARS FOR SALE.

ICAR, 4½ h.p., water-cooled, two speeds, silent; £19. — Faire, Elms Road, Lei-er.

X Triette, 5½ h.p., splendid condition; a bargain; what offers —23, Fleet Street, ndon.

.p. Twin Kerry Tricar, two speeds, free, coach-built, everything in grand order; -7, Upton Lane, Forest Gate.

h.p. Riley Tricar, two speeds, water-cooled, all in perfect condition; £34. pe, Manor Court Road, Nuneaton.

h.p. Riley Engine, two speeds, water-cooled, dual ignition; £35; motor e part.—Clegg, Church Stile, Rochdale.

MBER, 5 h.p., water-cooled, two speeds, coach-built, wheel steering, excellent ition; £35.—56, Manchester Road, Milns-ge, Huddersfield.

h.p. Runabout, Stevens engine, two speeds, coach-built, wheel steering; ection invited; £30; photo. — Ringrose, 's Hall, Leytonstone.

.p. Riley, 1907, perfect condition, not run 1,800 miles, new tyres, any trial, also 6 h.p. Singer, 1906, £50.—Brookes, ranville Road, Leicester.

.p. Humber Tricar, coach-built, wheel steering, good tyres, two speeds, and es; must sell; sacrifice £35.—No. 9,917, *Motor Cycle* Offices, Coventry.

ART, Reliable Tricar, coach-built, open frame, etc., nearly new; price £50.— y, 2, Ullswater Road, Palmer's Green, 6.30. Or exchange light car; trial.

.p. Fafnir Tricar, free engine clutch, footboards, perfect order and condition, perfect, good climber; give any trial; ain, £20.—26, Caunce Street, Blackpool.

ICAR for sale, 3½ h.p., Beeston Humber; cost £70, low price taken for quick no exchanges; can be seen any time.— ling, 85, St. Peter's Street, Islington, N.

MBER Tricar, water-cooled, 4-5 h.p., splendid condition, fast and reliable, accessories; very cheap; appointment evening.—S., 36, Bellevue Road, New hgate.

.p. Two-cylinder Stevens Tricar, two-speed gear, free engine, chain drive, l steering, splendid condition; £30 for sale.—Cross, Darlington Street, Wol-ampton.

ERLING Value.—5 h.p. Riley, new condition, everything perfect; trial run, ex-ination; buying car, must sell; cost £120, or close offer; £15 worth spares.—Riley, awdor Street, Stockton Heath, Warring-

MBER, 1907, 6½ h.p., water-cooled, equal brand new, every refinement, most lux-us car extant, open frame, wheel steer-bucket seat; only wants seeing; photo; £140, sacrifice 65 guineas.—45, Parade, nington.

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X, 3½ h.p. engine, tyres, Palmer front, Clincher, Bates heavy back, forecar rds, drive chain and belt, fans, counter-t, ball bearings, two brakes, wheels 28in., coil, spring seat, spare wheel, etc., dy, reliable, splendid order; expert ex-ination, trial; £28.—32, Ledward Street, sford, Cheshire.

h.p. Century Tandem, Aster engine, 700 by 85 Continental car tyres, two ds, Hans Renold chains, water-cooled by p, condition perfect, fast, climb any-e; trial, 60 or 100 miles, if necessary; ld be pleased to take car to pieces for ection; £43, cost £160.—Barrow, Fosse l, Syston, Leicester.

LEY, 5-6 h.p., coach-built, upholstered red, two speeds, acetylene headlight, ric side lamp, Dependence rear lamp, lunch basket, foot warmer, two accu-ators, tools, spares, new spare Dunlop, new last August, used week-ends only; over £100, accept £65 cash, or twin cycle payment. — Roberts, 10, Grove Place, pstead.

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3½ h.p. Werner, coach-built, convertible, spare wheel; bargain, £17.—98, Potter-newton Lane, Leeds.

3½ h.p. Tricar, Excelsior engine, convertible to cycle, in good going order; £14. —Benwell, 94, High Street, Aston.

4½ h.p. Riley, w.c., two-speed gear, coach-built, lamps, accessories, climb anything; £23; no offers; trial.—E., Myrtle Villa, Southwood Road, New Eltham.

JACKSON Runabout, four-wheeler, 3½ h.p. water-cooled engine, two-speed gear; this is really a small car; would accept £10 10s.; room wanted.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

LATEST 1908 Phœnix Trimo, 5-6 h.p., water-cooled, absolute new condition throughout, not run 300 miles; sacrifice £70, cost £100 with extras; wire secures; no offers.—R. Else, Leawood, near Matlock.

NOT beautiful, but thoroughly good tricar, 6 h.p. Aster water-cooled, open frame, wheel steering, two speeds; expert examination willingly; £23, or £15 and motor cycle.—8, Merton Hall Road, Wimbledon.

OPEN Frame Tricar (Chater-Lea), 4½ h.p. Stevens water-cooled engine, 9in. clutch, two-speed gear box, side lever, bucket seat rear, art cane front, in splendid order; £30; exchange.—Lacey, 14, Kirkwell Place, Old Ford.

SPLENDID Tricar, doctor's property (3½ h.p.); cost 75 guineas, just as new, guaranteed perfect; accept £18; no exchange; must sell this week.—Doctor, 673, Romford Road, Manor Park, London.

RALEIGHETTE, 3½ h.p., water-cooled, two speeds, petrol, water, and oil gauges, handle steering, handle-bar control, in new condition, two tyres and inner tube; £35, a bargain.—Nagley, Pasture Road, Goole.

7-8 h.p. Twin Peugeot, Phœnix tricar, two speeds, in perfect order, as good as new; 65 guineas, including accessories and spares; cost over £100; a trial will prove it a bargain.—Denyer, Meadsgate, Staines.

4½ h.p. Coventry Eagle Tricar, Buchet engine, very fast and powerful hill-climber, footboards, Longuemare, trembler coil, everything perfect; any trial; cheap, £25.—P. Nicholls, Buttsbury, Ingatestone.

5½ h.p. Quadrant Carette, open frame, wheel steering, condition practically new, in perfect running order, and powerful; lowest price, £33 10s., motor cycle taken in exchange.—Wauchope's, 9, Shoe Lane, E.C.

4½ h.p. Riley Tricar, water-cooled, two-speed and free engine clutch, chain drive, not run 1,000 miles, tyres good, Brooks non-skid, lamps and horn, spares; any trial; cash offers.—Hodgson Inman, Lune Bank, Lancaster.

FOR Sale, 4½ h.p. Humber tricar, water-cooled, two-speed gear, in good order, new car tyre on back wheel, and spare, new tyres on front wheels; can be seen at Featherley's, Bishop's Stortford, Herts. Price £20, or near offer.

EXCEPTIONAL Bargain.—5 h.p. Kerry twin tricar, Clincher tyres, Longuemare, footboards, single belt drive, climb mountains, upholstering, enamelling, plating, and complete machine in new condition; sacrifice £30.—Grover, Fenny Stratford.

6 h.p. Fafnir Tricar, Chater-Lea frame, open frame, wheel steering, twin-cylinder water-cooled engine, three speeds and reverse, two bucket seats, 1907 model; machine cost £140; price £55; any severe trial given; would accept a motor cycle in part payment.—Wauchope's, 9, Shoe Lane, London, E.C.

RALEIGHETTE 6 h.p. Tricar, wheel steering, open frame, sprung, bucket seats, twin-cylinder, water-cooled, chain driven, three speeds, new 2½in. Palmer cord back tyre, luggage grid, special long speed and brake levers, starts like car, fast, smart, comfortable, climb any hill; £65; recently overhauled.—Holroyd, Earlsdon, Coventry.

THE Bargain of the Year!—Open Frame Tricar, water-cooled 4½ h.p. Stevens engine, wheel steering, bucket seats, chain drive, two speeds, with clutch, new Dunlop non-slipping car tyre on back wheel, good condition throughout, will do 30 miles per hour, and climbs almost anything; price, with lamps, horn, jack, waterproof apron, etc., £25; trial run by appointment.—Owen, Fruiterer, Oakengates.

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h.p. Singer Tricar, very good condition; cheap.—37, Newstead Road, Lee, Kent.

3½ h.p. Automotor Tricar, Longuemare; £12, or good motor cycle.—F. Piner, Colnbrook, Slough.

5 h.p. Rex Tricar, twin-cylinder engine, in very good condition, accessories; £25.—G. Langley, Bromham Road, Bedford.

TRICAR, 3½ h.p. Minerva, first-class condition, like new, all the latest improvements; bargain, £25; after 7 o'clock.—24, Sidney Road, Forest Gate.

LAGONDA, 12 h.p., w.c., perfect; reasonable offer, or exchange for tonneau car; appointment.—Capt. Hyne, 6, Apsley Villas, Clapham Road, S.W.

£15.—Kerry Tricar, w.c., about 4½ h.p., Clinchers, footboards, splendid running order; trial allowed; part exchange. — 34, Goldsmith Road, Acton.

3½-4 h.p. Tricar, free engine, fan-cooled; any trial; £18; also Ariel motor trike, only ridden 100 miles, £15, bargain.—Motor, 112, New King's Road, Fulham.

3½ h.p. Kerry Tricar, two-speed, free engine, chain drive, in good condition, splendid hill-climber; £25, or near offer. — 80, Rectory Road, Fulham, London.

KERRY, 3½ h.p., Anglian two-speeds, coach-built front, footboards, fan. B. and B., trembler, climb anything, perfect condition; £24.—16, Riffel Road, Cricklewood, N.W.

TRICAR, De Dion, spare wheel, convertible bicycle, recently overhauled, good condition, running order; trial; £20, bargain.—9, Whitehall Road, Hanwell, Middlesex.

4½ h.p. Humber Tricar, free engine and clutch, chain driven, water-cooled, spray carburetter, good running order, fast machine; £26.—Humber, 8, Station Road, Leyton, Essex.

6 h.p. splendid little Rexette, equal new, water-cooled, two speeds, wheel steering, free engine, bucket seats, spares; bargain, £28 10s.; any trial.—E., 103, Denmark Road, Camberwell.

TRICAR, M.M.C. free engine, water-cooled, chain drive, coach-built body, new condition, tyres brand new, all spares, etc., good reason for selling; £25.—229, Court Oak Road, Harborne, Birmingham.

HUMBER, coach-built, 5 h.p., water-cooled, wheel steering, handle starting, two-speed gear, foot clutch, splendid condition; 25 guineas, absolute bargain.—Ward, The Cabin, Walton-on-Thames.

TRICAR, 4½ h.p. Aster air-cooled, cane body, Otto two-speed hub gear, belt drive, just overhaul d and re-enamelled, splendid condition; £25.—Fritz, The Ferns, Oakleigh Road, Whetstone.

TRICAR, water-cooled Humber Olympia tandem, coach body, free engine, pedal clutch, two-speed gear, footboards, apron, horn, lamps, spares; £25, or nearest offer.—E., 58, Grafton Street, Preston, Lancs.

TRICAR, Minerva, magneto, Kent three-speed, handle-bar control, handle starting, tyres unpunctured, acetylene lamp, tools; trial given; take £22, no less, pay it quick.—164, Mitcham Lane, Streatham.

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5 h.p. Water-cooled Bradbury Tricar, grand condition, copper tank and radiator, 3½ clutch with foot pedal, two-speed gear, coach-built body, two acetylene lamps, apron, spare tyre, tools and spares; trial invited; £30.—8, Cross Street, Cheadle, Staffs.

LATEST Phœnix Trimo, 5-6 h.p., has been carefully used, and run less than 1,000 miles, two ignitions, extra wide front seat, complete with three lamps, three spare tubes, and no end of tools, spares, and accessories, "A really fine lot"; lowest price, £62 10s.; come and see it (any time); don't miss this if you require a tricar, cheap and good.—Hurlock, jun., 70, Walworth Road, London (Elephant and Castle). 'Phone, 14942 Central.

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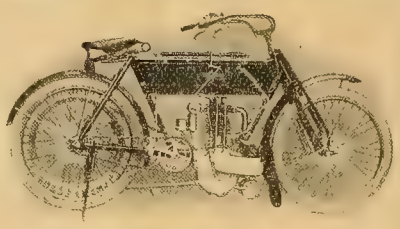

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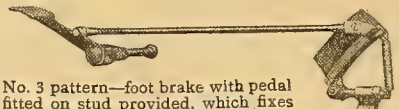

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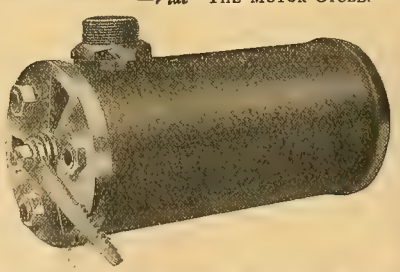

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DE DION Engined Tricar, 4½-6 h.p., O mann three-speed gear and free en clutch, car tyre (Palmer cord) back w coach-built front, beautifully upholst and sprung, in first-class condition, c anything, and very fast; bargain, £ Frank Almgill, Yeadon, Leeds.

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RIGID Sidecar, adjustable in every Clincher tyre, 26 by 2in., cush apron, and rear basket trunk, etc., equ new; cost £10, accept £4 18s.—21, High Quadrant, London, N.

STAMFORD HILL.—Our famous side speak for themselves; approval where; fit any machine, left or right, size wheel; £4 18s. 6d.; none better, w ever you pay; they are never sent h That talks.—128, High Road, Tottenhan

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FIRST Order for £2 17s. 6d. secures 2½ Beeston-De Dion tricycle, complete, hill-climber; room wanted.—Wilson, 17, tin Street, Lincoln.

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ONDITION Perfect, 2½ h.p. Minerva engine, carburetter, silencer, fit any inder frame, two spare valves, back wheel nplete, brake, two belts, pedalling gear; fitted large engine.—3, Victoria Avenue, st Ham.

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EPAIRS, vulcanising, re-treading, and moderate charges; quick despatch; work only (expert repairers); motor e covers from 13s.; tubes from 6s.; Unial detachable non-skids from 20s.—Unial Motor Tyre Co., Chestergate, Stock-t.

EFEGUARD Yourself Against punctures by solutioning inside your cover one our leather puncture-proof bands. nts, Beard Bros., Cricklewood; Kyberd, on Road, Walthamstow; Springfords, rthing. Post free 2s.—Makers, Barton, her merchants, Meeting House Lane, kham.

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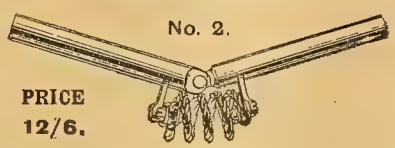

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£5 any motor cycle we cannot repair.—Whites, 22, Brooks Alley, Church Street, Liverpool.

IRIDIUM Champion "Indestructible" Contacts; any part fitted, returned same day; 1s. 3d. each.

IRIDIUM Champion "Indestructible" Contacts; warranted pure; special trimmers for polishing iridium, 9d.; no filing required.

IRIDIUM Champion "Indestructible" Contacts; hundreds in use.—Williams, 16, Wellington Street, Woolwich.

CRACKED Water Jackets of motors successfully repaired by Lea's metallurgical process.—Lea and Son, engineers, Runcorn.

AUTOGENOUS Welding.—Send that broken casting—cylinder or whatever it is—to us. Metal reunited by our process (patent). We save you pounds.

AUTOGENOUS Welding.—Quite unnecessary to replace that expensive part when we can weld the fracture. Send it to us. We can surprise you.

AUTOGENOUS Welding. — Cracked water jackets, broken flanges, pistons, and a thousand other things; prompt deliveries.—Alvaston Motor Works, Derby.

MAGNETOS Re-magnetised and Re-bushed, accumulators repaired promptly and efficiently; moderate charges.—F. Carey and Co., 54, Grove Avenue, Twickenham.

LEICESTER and County riders should look up the Central Motor Co., Langton Street, Belgrave Gate, Leicester, for repairs, tyres, accessories, and accumulator charging.

CLAPHAM. — Cheap and practical repairs to motor cycles and tricars, replacements, enamelling, plating, etc.; accumulators charged.—Campbell, 156, Wintemberg Street, Clapham.

CCCCCCCCC Compression means power.—Cylinders re-bored and new pistons fitted; guaranteed fit 4-1,000in.; bears 13 stone on pedal; write for list.—Gradior Machine Co., Compression Specialists, Stafford.

TO West of England Motorists.—Car and motor cycle repairs, prompt and reliable; cylinders re-bored, new pistons and rings fitted; don't hesitate; send straight to us.—Hamlin, Motor Works, Bridgwater.

DE DION, M.M.C., Excelsior repairs; prompt, and charges moderate; large stock of renewals and spares; engines converted from 2¾ to 3¾, or exchanged; ten years' experience.—The Record Motor Co., Coventry.

THE Leeds Motor Exchange are open for all classes of repairs or replacements. Write, or telephone, 2262, giving your requirements; exhaust valves, cast iron heads, 2s. 6d.; send old valve or drawing to The Leeds Motor Exchange, 23, Dock Street, Leeds.

LONG Handle-bars to Buyers' Specification, 4s.; swan-neck saddle-pillars, ditto, 2s. 6d.; frames, wheels, and tanks repaired or made to any specification; high frames cut down and machines generally brought up-to-date; smart delivery a speciality; lowest prices for good, sound work.—Green, 14, Avondale Road, Peckham, S.E. Works: McDermott Road.

EXCHANGE.

EXCHANGE, 5 by 4 Tella Hand Camera, cost £19 19s., for motor cycle. — Briggs, Whitby.

MY B.S.A. Racer, as new, and lady's cycle; exchange for motor.—15, April Street, Dalston.

EXCHANGE New Wired Edged Cover, 28 by 2, for good amperemeter.—Allan Barker Stokesley.

EXCHANGE 10-12 h.p. two-seated car; wanted, runabout, or tricar and cash. —9, Newboult Road, Cheadle.

3¼ h.p. Excelsior, excellent condition; exchange at once for something useful, or cash.—T. Young, Shepherd's Hill, Haslemere, Surrey.

EXCHANGE Special Coach-built Forecar, cost £16, for good lathe, about 4in. centre, anything useful, or sell.—31, Sebert Road, Forest Gate.

EXCHANGE.

2¼ h.p. Chater-Lea for pedal cycle and cash.—11, Stroud Green Road, N.

GENT'S New Cycle and cash for motor cycle.—668, High Road, Leytonstone.

POST Office, Bovingdon, Herts.—3½ h.p. motor cycle; £10, perfect running order; exchange.

6 h.p. Twin Tricar, new in April, for twin bicycle, sidecar, or sell £50. — Seeman, St. Chad's, Ealing.

BRITANNIA Screw-cutting Lathe; exchange for good motor cycle.—668, High Road, Leytonstone.

EXCHANGE, 4 h.p. Excelsior, first-class condition, for three-speed cycle and cash, or £16.—A. Newbold, Dunblane.

CAR, also motor boat, both fitted with 4½ h.p. De Dion engines; offers; exchange good motor cycle.—Heathfield Lodge, Acton.

EXCHANGE Eadie Frame, fit 3½ h.p. Minerva, and cylinder, for 2¾ h.p. engine and carburetter.—F. Fenton, Sleaford, Lincolnshire.

EXCHANGE 1908 1¾ h.p. F.N., lightweight, magneto ignition, perfect, not run 100 miles, or sell £30.—Motorist, 21, Bentley Lane, Leeds.

EXCHANGE 4 h.p. Steven Engine cycle, perfect condition, for tricar, perfect condition, cash adjustment.—20, Stafford Road, Wallington, Surrey.

BOWDEN, 2¾ h.p. F.N., vertical, spray, chain, very low, and cash, for recent 3½ h.p., good make.—Freak, Hillside Road, Watford.

MOTOSACOCHES, 1908 models; second-hand motor cycles, foreign and British stamps taken in part exchange.—Motors, 41, Green Street, Cambridge.

EDISON Concert Phonograph, 56in. horn, basket, 39 records, cost £26 10s., for good second-hand motor cycle.—Turner, 14, Corporation Road, Newport.

MANUFACTURER will exchange beautiful E.P.N.S. goods, value £12, for decent motor cycle.—For particulars, Caddick, 115, Camden Street, Birmingham.

EXCHANGE ⅜in. by 8ft. 6in. new Dermatine belt for a good ⅜in. leather belt, or sell 9s. 6d.; wanted, Bowden back shoe, cheap. —Thorne, Brunswick House, Tiverton.

N.S.U., Triumph, or Minerva, twin-cylinder, forecarriage, in exchange for £50 Hammerless ejector gun, Webley makers, new.—Wallis, Hykeham, near Lincoln.

EXCHANGE for good motor cycle or tricar, new furniture, direct from works, valued wholesale.—Furniture manufacturer, 7-11, French Place, Shoreditch, London.

FINE Four-seater Darracq Car, first-class condition throughout; accept 9 h.p. Riley tricar and small cash adjustment.—Box 9,908, *The Motor Cycle* Offices, Coventry.

2½ h.p. Alldays (splendid order) and cash for higher power, well made, preferably with two speeds and sidecar.—No. 9,919, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

5-6 h.p. Peugeot, magneto, Truffault forks, petrol filter and gauge, splendid condition; exchange for 3½ h.p. Triumph, or sell £50; too powerful.—Hoare, 1, Crescent, Truro.

EXCHANGE, Montgomery Sidecarriage, 26in. wheel, Continental tyre and tube, fit either side, splendid condition, for good trailer and cash.—Mitchell, High Street, Forres.

h.p. Twin Motor Cycle, practically new, Palmer tyres; part exchange for suitable car, single motor cycle and cash, new cycles, or anything useful.—138, City Road, Cardiff.

HALIFAX.—Genuine Twin Rex, £22, guaranteed, spring forks, low built, goes like a flash; £16 given for 1906 Rex, £13 for 1903 Rex in part payment.—16, Westgate, Halifax.

EXCHANGE 6ft. 6in. by 3ft. 6in. Specially Constructed Billiard Table, valued £11, for light motor cycle, no cash adjustments. —Marsh, 34, Yerbury Road, Tufnell Park, London.

SALTER Typewriter and two-speed push Premier cycle in exchange for Motosacoche, F.N., or 1907 Fairy, or sell £24.—W.A.B., c/o Campbell, 24, Simpson Street, Glasgow.

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1/2	1/4	1/8	1/11 per ft.

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EXCHANGE.

EXCHANGE 4½ h.p. Coronet engine, wate cooled, M.O.V., quite new, for single twin, about 6 h.p., water-cooled, any firs class make; cash adjustment.—620, Barnsl Road, Sheffield.

EXCHANGE Phœnix Trimo, 5-6 h.p., tw Peugeot fan-cooled engine, two speed wheel steering, in first-class condition, f good motor cycle and cash, or sell £42 10s.— Dock Street, Leeds.

WAUCHOPE'S, of 9, Shoe Lane, E.C., a range exchanges of all description call and inspect their stock, or write for l of second-hand and new machines; ba gains are offered daily; satisfaction assure

EXCHANGE 1907 Twin Rex, good goi order, with Roc clutch, magnet spring forks, cantilever seat, twin tyr for single-cylinder; write particulars. — Napier, Thames Valley Motor Worl Staines Road, Sunbury.

GUINEA Klito Magazine Camera, for 3¼ 7½ft. Dermatine, Gloria, or Watawat also pair plated Xl'all spring forks, f spring footrests to fit 2¾ h.p. F.N.; al Brooks B100, size 4, for Tee Bee stand Sumner, Fairview Pharmacy, Dublin.

EXCHANGE 7-9 h.p. twin Star, two-seate newly done up (cream), and ov hauled, new upholstering, new Dunlops, by 85, grooved behind, new inner tubes a spare, new Fuller coil, side lamps, electi tail lamp, for 9 h.p. Riley, or similar tric and small cash adjustment, or sell.—Sma Star Hotel, Alnwick.

WANTED.

PHŒNIX 8 h.p. Car. — Howard, Brithd New Tredegar.

WANTED, Four-cylinder 4½ h.p. F.N.; sta lowest price.—Briggs, Whitby.

ELON Memo Water-cooled Cylinder, 70 75.—H. Carr, Hook Road, Goole.

SIDECAR, for Zenith Bicar wanted. — 9,868, *The Motor Cycle* Offices, Coventry

RACECOURSE Garage, Doncaster, wants purchase modern motor cycles for sp cash.

SIDECAR wanted, 26in., rigid, or exchan forecar.—Ellis, 1, Oxford Road, Kilburn N.W

WANTED, siren, work off wheel or e haust.—Thain, 85, Welford Road, L cester.

WANTED, carburetter, about 2¾ h.p., go make. — J. King, Downham Mark Norfolk.

WANTED, motor cycles, good makes; ca waiting; cheap.—Rey, 5, Heath Stre Hampstead.

WANTED, Old Accumulators; best pri given.—Motories, 3, Arley Grove, Ar ley, Leeds.

WANTED, engine, twin or single; e change three-speed cycle. — Mot Knockholt, Kent.

WANTED, second-hand motor bicycl must be cheap. — Greenwood, Ma Street, Muirkirk.

WANTED, Phelon and Moore, 1907; fancy price given. — 9,906, *The Mot Cycle* Offices, Coventry.

WANTED, quadcar, or trike, any con tion; exchange lathe, 7in. centres 209a, Peckham Rye, S.E.

WANTED, twin motor cycle, 5-8 h.p.; e change new 1908 3½ h.p. Minerva a cash.—Dallaway, Cape, Smethwick.

WANTED, motor cycle, Triumph pr ferred; also tricar or small car Motorist, 14, Crescent Avenue, Whitby.

3½ h.p. Twin Engine, magneto, perfect, al Chater frame, No. 6; particulars; a proval.—Gillespie, K.I.C. Depot, Dublin.

WANTED, Tricar, 5-6 h.p. Phœnix or Rile 1907, or later pattern.—Box L2,338, *T Motor Cycle* Offices, 20, Tudor Street, E.C.

WANTED, Second-hand Motor Cycles part exchange for twin Moto-Reves Colville Works, Linden Arcade, Chiswick

WANTED, good motor cycle, tricar, a accessories, in exchange for ne furniture, direct from factory, valued who sale.—Furniture Manufacturer, 7-11, Fren Place, Shoreditch, London.

THE MOTOR CYCLE

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The Motor Cycle T.T. Race, 1908.

TO PRIVATE OWNERS.

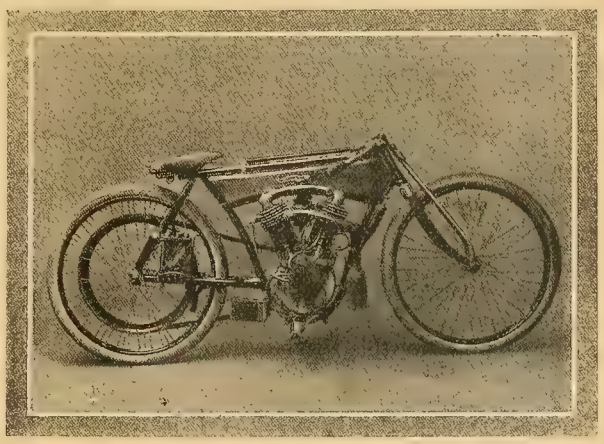
NOW that you are considering the question of your new machine, why not select one suitable for the classic event of the season, and make a bid for the Tourist Trophy? Last year, in spite of a combination of adverse circumstances, the first Motor Cycle T.T. Race proved a great success, and was voted a most interesting experience by everyone who assisted, whether as competitor, official, or spectator. This year's event promises to be contested under vastly more favourable conditions, and should, if adequately supported, afford a sporting experience at once unique, instructive, and amusing.

Whether you incline to a twin or prefer a single-cylinder, you are welcome. In either class there is "plenty to go for"—quite a variety of prizes, mostly of a value in keeping with the importance of the event. The cylinder dimension limits admit standard engines of practically every maker of repute, and the nature of the course renders a specially light machine not only inadvisable, but, in my opinion, a needless risk of one's chances of success.

"Oh, but," says the Private Owner, "when it comes to long-distance racing, I've no chance against the professionals; it's simply risking my neck for nothing. Besides, it's such a fag to get the machine across the water."

Your pardon, good sir. The former view is, in my opinion, quite a mistaken one. With regard to the latter item, permit me to assure you that the trouble is very small indeed.

In the case of last year's race, the petrol allowance rule had the intended effect of limiting the speed, the winner's average being the very reasonable one of thirty-eight miles per hour. This I consider a perfectly safe speed, having regard to the nature of the course, and the fact that the roads forming the latter are during the progress of the event closed to the public. This year the petrol allowance has been still further reduced, so that it is fairly safe to assume that last year's speeds will not be substantially exceeded. Consequently there will be neither need nor opportunity for either professional or amateur to take any undue risks. It is well known that the men



The neat-looking Leader racer fitted with 7 h.p. Peugeot engine, ridden by L. Kickham in both the Brooklands motor cycle races. In the first race Mr. Kickham finished second, but on the 9th inst. he was unable to catch up the limit men. The engine is fitted with a special current distributer.

who in the 1907 event cut the corners closely and otherwise took risks did not win.

The course is—as it should be—of a nature to require the exercise of a fair degree of driving skill and care. I should not, however, class it as extraordinarily difficult, nor as at all beyond the capabilities of any motor cyclist with fair experience of touring at good average speed, and possessed of the *mens sana in corpore sano* essential to success in all forms of athletic competitions. The knowledge that the course is as scrupulously reserved for his use as would be the case at, say, Brooklands or Canning Town, has naturally a "grateful and comforting" effect on the inexperienced competitor, giving him encouragement to extract the best pace from his mount, and confidence in approaching corners at speeds that would be quite unjustifiable under normal conditions.

So far, therefore, as the course is concerned, the professional cannot be said to have any undue advantage.

Genuine Touring Machines must be Ridden.

When we come to the question of the machines to be used, we find that the regulations are clearly in favour of the private owner. No machine will, I understand, be allowed to start which is not obviously and incontestably a genuine touring motor bicycle, lacking only pedal gear to bring it up to the most complete standard specification. Inaccessible valves, cylinder ports, inefficient silencers, gingerbread fittings of any kind—all are strictly barred. Since undue lightness in frame, engine, or tyres, implies almost certain failure, it is obvious that the mechanical advantages attainable by the trade rider, as against a well-tested and efficient privately-owned machine, are practically nil.

The fuel for use in the race is, as is well-known, supplied by the A.C.U. None other may be used, nor is any addition thereto possible. By a very reasonable arrangement, entrants can obtain from certain local dealers supplies of this special Club fuel for practising purposes, so that "tuning up" may be carried out by all competitors, under conditions identical with those obtaining in the race. I may say that last year I found this special fuel thoroughly satisfactory in every respect. Obviously, then, there is no chance for any advantage to be "worked in" here, whether by trade rider or private owner.

With regard to the arrangements for, and conduct of, the actual race, I willingly testify that nothing could be fairer, more impartial, or more generally creditable than the attitude of the officials. Keen upon making the event a perfect success, and willing to sacrifice all consideration for personal comfort and interest in order to secure that end for which they had come so far, this little band of disinterested enthusiasts discharged its multifarious duties in a remarkably efficient manner. Many of them were professors of science, consulting engineers, journalists, and the like, whose names are well-known in the motor world, and who cheerfully gave unstinted service, not only of highly trained intellect, but of willing and capable hands. Any suggestion of partisanship would have been deemed absurd—even by an aggrieved competitor, had one existed. A picture rises before me of a private competitor, stretching his legs during the brief luncheon interval, with a sandwich in one hand and a glass of lemonade in the other, watching his tank undergoing replenishment at the hands of a well-known journalist, the spattered crock being carefully supported by a professor of engineering and an official of the R.A.C.

In short, everything possible is done to promote the comfort and safety, and to equalise the chances of all competitors. The ideal of the A.C.U. and its officials is, unquestionably, to render the T.T. Race an impartial test of ability on the part of the driver, and of reliability, economy, and utility in the case of the machine.

Some of the early arrivals for the Liverpool M.C. Hill-climbing Competition on the 16th inst.

So much for the imaginary advantages of the trade rider. Now as to other matters, beginning with the journey thither.

The Journey and Other Arrangements.

The preliminary stage (to Liverpool or Fleetwood) is, of course, covered either by rail or by road at the convenience of the competitor. Once arrived upon the landing stage, the motor cyclist discovers two agreeable facts: first, that the carriage of his machine is to cost him considerably less than would be charged for a similar distance over any British line of railway, and (2) that he has a great "pull" over the car owner, inasmuch as he is permitted to take his motor cycle with him on the passenger boats. There is plenty of assistance forthcoming to get the machine on board, where, lashed to the rail which runs round the engine room, it securely performs the journey under cover, and

The Motor Cycle T.T. Race, 1908.—

can, if the owner is unnecesarily nervous on its account, be kept under observation during the whole journey.

After a sea passage offering an enjoyable change, and terminated before monotony sets in, one is set ashore in a new land—a country where the motorist of any degree is welcomed without being fleeced; where "rules and regulations," other than the requirements of common courtesy and consideration, are practically non-existent; where red tape is at a discount, and police traps as scarce as dentition in fowls. The motor cyclist visits a quiet little office, where courteous officials promptly present him with the untrammelled freedom of the Manx highways—and decline to accept any payment therefor! Comfortable accommodation at really reasonable rates will be as plentiful this year as last, the race being fixed to take place towards the end of September, when the great rush of visitors will be over.

Last year most of the competitors stayed in Douglas, where facilities for evening recreation are abundant. A few quieter tastes "pitched their moving tents" at Peel or Kirk Michael, which have the advantage of being on the course. The nearest point of the latter to Douglas is at Ballacraine, where the course leaves the Peel-Douglas Road and turns northwards towards Kirk Michael. Ballacraine is not far from Hall Caine's picturesque home, and is about eight miles from the capital.

Practice Spins.

Directly the competitor has secured quarters to his liking his thoughts will naturally turn to the question of practice. In this respect, again, competitors in the 1907 motor cycle event had enviable advantages over the car drivers. The latter were only allowed to practise between daybreak and 7 a.m., and were required to be "off the map" for the day and cars safely garaged by 8 a.m. On the stroke of the latter hour the single-track speed merchants were free to commence their trial spins. No "closing time" was imposed, the only requirements being that discretion should be exercised, so as to avoid any risk of offence or damage to the property or persons of the islanders or visitors. The results of this experiment were, I believe, perfectly satisfactory on both sides, and it is to be hoped that a similar arrangement will be again adopted this year. To say that the Manx entered into the spirit of the thing is to fail to do them justice. Children and poultry were kept off the road, horses promptly drawn aside, corners indicated by volunteer signallers—everything done that could be reasonably expected, in order that the entrants might be able to achieve good average circuit times. As a matter of fact, some of the competitors never equalled in the race itself their best lap times made in practice, owing to their retaining gears too high for use against the strong, cold wind that sprang up early on the morning of the race.

To the lover of speed those practice spins are, in the words of a well-known advertisement, "a luxury unknown in England." There are stretches of road where the pace attainable is only limited by the maximum engine speed. Such sections of highway would certainly be police trapped in many English counties, and yet in the Island, secure from persecution beneath the ægis of a more enlightened administration, the motor cyclist daily performed at over fifty miles per hour, and nothing happened. Why should it?

Confidence v. Police Traps.

Confident in the knowledge of competent efficiency on his own part, and rapidly operating control as regards the machine, the rider keeps a keen look-out, and, driving always with due discretion, amply justifies the official confidence, which willingly accepts his parole in preference to encouraging falsehood amongst public servants.

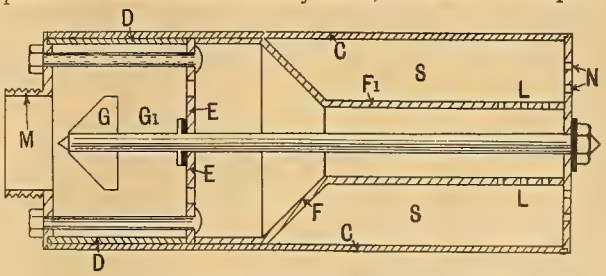
To those not greatly interested in racing "The Island" offers a touring ground second to none as regards beauty and variety of scenery, always within easy reach of first-class accommodation. I trust, therefore, that I may succeed in inducing a good number of motor cyclists to visit "little Man" this year, and so, by no further effort than that involved in the enjoyment of a comparatively cheap holiday, assist in the support of two good causes—the encouragement of the Manx authorities in an enlightened policy, and the promotion of the success of the Motor Cycle Tourist Trophy Race, 1908.

R. W. AYTON.

AN EFFECTIVE SILENCER.

WITH a view to rendering the noise of the exhaust less audible, Mr. B. F. R. Collyer, of Northampton, has designed an exhaust box for motor cycles of which the annexed illustration is a sectional elevation. The burnt gases enter through the end plate M, and strike the slanting surface of the cone G, afterwards expanding in the surrounding chamber G_1. From this chamber they pass through holes in the plate E and strike the slanting surface of the larger cone F of the inner cylinder F_1, rebound, expand, and pass down F_1, escape through holes L L into the chamber S S, where the gases finally emerge through holes N in the end plate.

The inventor recommends that the end plates M and N and the inner cylinder F and cone G be made of brass, the outer cylinder C and inner cylinder D of iron tubing. Some time back Mr. Collyer sent us a silencer for trial which we fitted on one of our machines. We found it silenced the exhaust effectively, but at high speeds with full throttle there was a slight tendency towards back pressure. We understand that a later pattern is free from this objection, and as our experiment was made after lengthy use of a silencer cut-out, it is only to be expected that some slight loss of power would be apparent. There is no reason why this particular silencer should not also be provided with a cut-out for use in open country free from traffic.



HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 396*)

TRAILERS.

220. A trailer is an unsatisfactory method of conveying a passenger, and under no circumstances should any trailer not specially built for motor work by a reliable firm be attached to a motor bicycle. I have twice had breakages with special motor trailers, and in addition they are easily upset, and the driver may pardonably forget how much room he needs when seeking a fissure in the traffic.

They are very shaky, and the passenger gets the full benefit of all dust, noise, and smell.

It is prudent for the driver to shout once in every mile, "Are you there?"

TUNING UP.

221. One point requires to be kept in mind in all efforts to get the best out of any motor cycle engine, viz., that the power of any motor cycle engine depends primarily upon its *speed of revolution*. From beginning to end, therefore, study methods of increasing engine speed. In connection with this, two warnings—

1. Speed when running light on the stand or free engine is not necessarily reproduced under load on the road. The engine explosions must blend into a continuous indistinguishable purr or roar *on the road*.

2. With twin-cylinder engines, aim at getting the highest possible engine speed out of each cylinder. If one is faster than the other, the other could be accelerated by judicious attention; moreover, it is slowing the faster piston. Therefore, frequently test each cylinder individually by short circuiting its plug with a screwdriver, or holding down its inlet valve.

METHOD.

The Machine.

There are fewer points to verify about the machine, therefore always commence with it.

Is the frame true, and wheels accurately in track? All bearings properly adjusted and lubricated? No rubbing of any brake in off position?

The Transmission.

If by belt, is pulley clean and unworn, and is belt clear of bottom of groove? Is rear belt rim true and clean, and deep enough for belt to be flush with its top edges, while clearing the bottom of the groove? Is belt clean, well-dressed (if leather), and pliable, and loose enough to give 2in. of vertical movement when firmly pressed on either of its long runs?

If by chain, are chains clean, lubricated, and unworn? Are the countershaft bearings adjusted and oiled?

If by gear, are gear shafts free in bearings, teeth properly meshed, and gearbox filled with grease or thick oil?

The Engine.

In engine there are two main points to watch—compression and valve action.

COMPRESSION.

Points of leakage: Past piston rings, through valve seatings, past washers surrounding valve caps, compression tap and sparking plug, through joint of cylinder head, if cylinder be not cast in one piece.

PISTON RINGS

must be just free in grooves, without noticeable up and down play, and be bright all round. If marked with brown patches, and yet not stuck in grooves, a new ring fitting cylinder more accurately is needed. If gummy in grooves, clean groove and ring with paraffin and brush. If slots are in line, space out to 120°.

VALVE SEATINGS.

Grind in valves as previously described, beginning with 220 emery or coarse carborundum, and finishing with fine carborundum or crocus powder, till whole bevel face of valve and its seating are brightly polished and free from pitted marks.

COMPRESSION WASHERS.

It is commonly supposed that the absence of stains round the compression washers shows that there is no leakage. This is not true. Squirt a few drops of thick engine oil round washers, and force engine over compression. If no bubbles, washers are perfect. Otherwise, replace them. Old washers may sometimes be resuscitated by soaking in oil.

CYLINDER JOINT.

Re-make with brown paper soaked in boiled linseed oil. Be careful new packing is not thicker or thinner than one thick sheet or two thin sheets of brown unglazed packing paper.

VALVE ACTION.

Is timing right?

Is there a big gap between valve stem and head of tappet? Gap is right if when engine is *hot* the tappet just releases a thin sheet of notepaper placed between valve and tappet, when tappet falls. The gap with engine cold varies according to degree of expansion in valve stem when hot.

Average gap, 1-32in.

Is lift sufficient? It will be about a quarter of the effective diameter of valve opening, roughly ¼in. May be reduced by wear anywhere in valve system, by fitting new valve with shorter stem, and by mishap to valve lifting mechanism.

Are valve springs of correct strength and strong temper? A mechanical valve's spring must be set by experiment, since too weak a spring leads to late closing, and too strong a spring throws resistance on the cam, and is very prone to break the heads off the valves. Keep a standard spring, and when tuning engine, test spring in use by pressing it against standard, end to end. An automatic inlet valve is best served by as strong a spring as the engine can open at starting, but slightly weaker inlet valve springs will serve for ordinary touring. Correct opening of automatic inlet valve probably will not exceed 3-32in.

Are valves free in guides when hot? If not, remove valve and clean the stem thoroughly with emery cloth.

(To be continued.)

Liverpool M.C. Hill-climb, May 16th. Mr. and Mrs. Frank Lee half way up the steepest part of the hill.

The A.C.U. Sutton Bank Hill-climb.

Looking down the steepest part of Sutton Bank—gradient 1 in 3·96. Lake Gormire in the distance.

Near the top part of the hill where the gradient is slightly easier. Only the best hill-climbers will reach this point.

IN our issue of May 13th, on pages 377-8, we published a contour section and plan showing the location of the famous Sutton Bank, near Thirsk, which has been selected as the venue for the A.C.U. open hill-climb on Saturday next. If readers will compare the section and plan with the illustration on this page, they will gain an idea of the severity of the gradients. Sutton Bank is one of the roads over the Hambleton Hills, and is on the route *viâ* Helmsley and Pickering to Scarborough. It can be avoided, however (and is avoided!), by ordinary tourists. The bank is said to be the steepest ascent on any main road in England, the length being about one mile and the average gradient one in eight.

Entries for Saturday's competition, which commences at 2 p.m., will be found on our late news pages.

Panoramic view of Sutton Bank on the Hambleton Hills, the scene of the A.C.U. Open Hill-climb for motor cycles next Saturday.

THE TOUR DE FRANCE.

MOTOR CYCLE AND VOITURETTE RELIABILITY TRIALS.

(From our Paris Correspondent.)

THE conclusion of the trials at Paris on Sunday, the 17th inst., was the occasion of a big reception of the survivors by a host of friends and spectators. The survivors, as reported in last week's issue, were:

Class I.—No. 3 (Lurquin-Coudert), No. 4 (Peugeot), and No. 7 (Peugeot).

Class II.—No. 12 (Griffon) and No. 13 (Werner).

Class III.—No. 19 (Bérujeau tricar).

The last day's run was from Tours, and a commencement was made at 5.30 a.m. The road taken was through Chateau-Renault, Vendome, Chateaudun, Bonneval, Chartres, and Rambouillet, the finish being at the Porte-Maillot, Paris. The machines were not due in the control at the Porte Maillot until 1.30 p.m., but all the survivors were in long before this time, and had to wait to be registered. The roads were in a very fine condition, but, owing to the dry weather experienced on the last day or two of the trials, they were inclined to be dusty. However, excellent runs were made by those who were eligible to start on the last day's journey, only one, the Quentin (No. 1), having dropped out from the previous day's run.

The Awards.

Class I.—Quarter-litre (250 cubic centimetres) capacity:

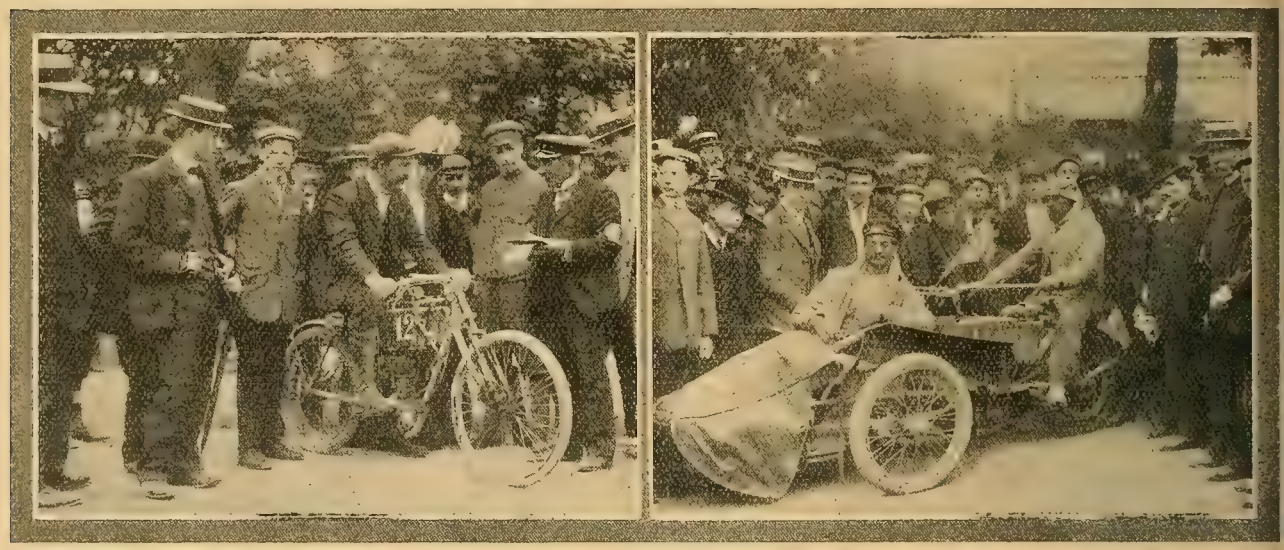
1. Peugeot (Pons), lost no marks.
2. Peugeot (Pean), lost no marks.
3. Lurquin-Coudert (Vilbois), lost 76 marks.
4. Quentin (Mauger), lost 302 marks.

Class II.—Lightweights (210 cubic centimetres capacity):

1. Griffon (Bucquet), lost no marks.
2. Werner (Maillard), lost no marks.

Class III.—Tricars, half-litre (500 cubic centimetres) capacity:

1. Bérujeau (Bérujeau), lost no marks.
2. Furan (Justal), lost 720 marks.



Bucquet (Griffon Lightweight) and Berujeau (Berujeau Tricar), two of the competitors who completed the long trial to schedule time and without the loss of a single mark. We published a photograph of Pons and his Peugeot last week (see page 403).

The small Peugeots have done excellently. The engines measure 64 mm. by 68 mm., and the machines are fitted with Truffault spring forks. Neither the Griffon nor the Werner lightweights lost any marks, but the Griffon is placed first in its class because Bucquet climbed the hill La Baraque, near Limoges, faster than Maillard. The Werner measures 60 by 70 mm., and is said to weigh unladen only about 64 lbs.

PRIZES IN THE END-TO-END RUN.

GOLD medals will be awarded to the entrant of the machine obtaining ninety per cent. of the total marks, and silver medals to those obtaining seventy per cent. of the total marks, together with a certificate of the performance.

In addition, a special gold medal, presented by the proprietors of *The Motor Cycle*, will be awarded to the private owner making the best performance on a motor bicycle, and one for the best performance on a passenger motor cycle.

A special prize will be awarded to the trade rider who adheres to the daily schedule and accomplishes the best performance throughout the trial.

A special prize, presented by Mr. W. H. Wells, will be presented to the private owner making the best performance on a twin-cylinder motor bicycle.

A special prize will be presented by Mr. A. J. Wilson to the rider accomplishing the best performance on a lightweight motor bicycle.

A special prize will be presented by Mr. A. G. Reynolds for the best performance of a machine up Berriedale. Speed not to be taken into account.

A bronze medal will also be awarded to each rider who finishes at John-o'-Groat's within six days, and who does not receive any other award, together with a certificate of the performance.

OCCASIONAL COMMENTS.

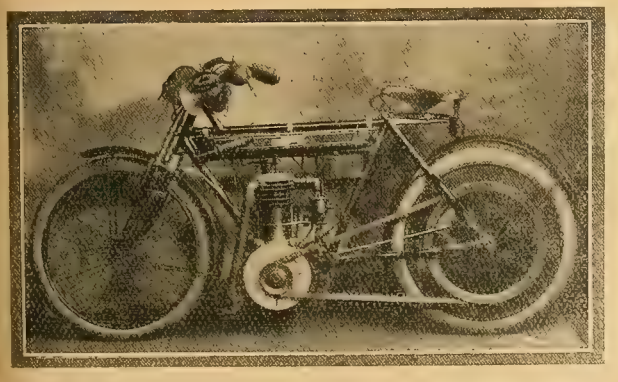
By "IXION."

The Importance of Details.

Two or three of us were talking over End-to-end prospects the other evening, and chipping a member of our party because, having failed to get a guarantee that a machine of famous make would be delivered in June, he had ordered an admittedly inferior machine, of which he could get almost instant delivery, and intended to put it through to John-o'-Groat's instead of the other. He defended himself as follows: "If there is a machine on the market without a single imperfect detail, it's the first year it's ever been so, and you fellows don't know what a fearful nuisance a single faulty detail can be. In the 1906 End-to-end I had a splendid machine, but the stand fitted was on the rear spindle ends. So I said to myself, if my back wheel has to come out I shall take no end of a time over the job! So I fitted a different stand, clamped to the chain stays. That stand robbed the run of all pleasure for me. Its blessed legs splayed, the clips dropped to pieces and so forth in the first forty miles, and for the other 850 miles I could not test my engine on the stand, and whenever I stopped for any purpose I had to find a bit of rock or something to prop the old jigger up with. So this year you can bet every item I start with is going to have a two months' jolly good gruelling on the road. I'd rather start on a second-rater, fitted with a few home improvements, and well studied in a thousand miles' preliminary riding, than use a first-rater uncrated a few days before."

Overheating and Oil.

We have heard great things about overheating in *The Motor Cycle* lately, and more particularly from Mr. R. W. Ayton, whose article in the issue of April 8th every motor cyclist ought to read, learn, and digest. Mine is the more humble task of enunciating practical tips, and, deserting all fearsome technicalities, let me briefly indicate how I have solved my last three cases of overheating. The trouble in each case appeared gradually, but, having once appeared, was chronic. Maximum speed on the level was greatly reduced, however gingerly the machine was driven, and formidable hills were rendered unclimbable. The usual phenomena were all present—fluffy exhaust, glowing engine, rapid pitting of valves, knocking and clanking in the engine. In each case I oiled the engine very liberally indeed, and drove hard till the overheating was very pronounced indeed. When cool I removed and replaced the cylinder, which is a short job all told with many modern machines, and, as I had suspected, found the piston and cylinder practically bone dry. The next step was to inject several charges of the rubbishy oil, and press on till a garage was reached where a more efficient lubricant was procurable. The theory of it matters very little to most of us so long as we can provide a swift and simple remedy, and I should estimate that about fifty per cent. of the cases we hear of are solely ascribable to bad lubricant marketed by the "get-rich-quick" type of motor supply agent.



The 4½ h.p. Noble, ridden by C. B. Heaton in the Essex M.C. Lippitt's Hill-climb. The Noble Motor Co. point out that if this machine had been entered in Class III. it would have won this class as well as Class II.

An Ideal Carburetter.

Now that the lamp makers have taken the unusual step of consulting the riding public as to what sort of head lamp we want, it would be an excellent thing if the makers of a few other accessories would do the same. For instance, we should all like to be allowed to design our own carburetters—not the misty gaseous factors of the design, but the little practical parts. I will start the ball rolling with the idea that others may expand my ideal. My own ideal carburetter, in addition to extracting twice as much kick out of my engine as any other carburetter has hitherto done, should correspond to the following specification:

1. No small soft screws anywhere about it, either in the form of cleaning plugs, throttle stops, or to secure its lids.
2. One large nut, suited for an adjustable spanner to secure the tops of both chambers—as opposed to a milled nut, or a score of microscopic grubscrews.
3. Jet to unscrew separately without disturbing any other part of carburetting chamber.
4. Jet to screw into a detachable holder, so that I can change jets readily to suit the varying temperatures of winter and summer.
5. Float to be marked "top" on its top, so that I may not take it out, forget which way up to return it, and so spoil adjustment of the level.
6. Needle to be "damped" by a screwed adjustable cap, or other device, preventing flooding by vibration.
7. Point of needle to be of a metal that will not wear within 1,000 miles.
8. Throttle and air to be worked by close fitting pistons or slides, so constructed that no air or gas can pass when not required, and so that when I take them down and remove grit they can be easily replaced.
9. Union of petrol feed to be so constructed that I can
   (a) easily engage nut on thread.
   (b) Put a spanner on it, without fouling feed pipe, or other parts.
10. Funnel to be proof against fracture by incautious tightening of any nuts.
11. Jet to be single, not rose shaped, as a single jet is far less liable to choke.
12. Top of needle to have a knob, or other attachment, or float chamber lid, to be fitted with a push button, rendering it possible to flood at starting without removing gloves.
13. Great range in supply of extra air, so that I need not drill holes in my inlet pipe and fit slides to them.

QUESTION & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Troubled with Punctures.

I have had so many punctures I am thinking of using Elastes for filling up inner tubes of motor cycle, and shall be glad if you can give me any opinion on the resilience, etc., of the filling. Can the stopping be taken out after setting if found unsatisfactory? My machine is a 2½ h.p. Ariel.—G.S.M.

We have not up to the present tried Elastes on a motor bicycle, so cannot give an opinion, but understand it is quite satisfactory in car tyres. We do not think that the material can be removed from a tube after it has set.

Cooling the Engine Descending Hills.

You recommend in "Motor Cycles and How to Manage Them" that after mounting a hill and descending a fairly steep one, it is good practice to open the throttle wide and allow the cold gas to enter the cylinder to cool it. Do you mean also to have the exhaust valve raised, as my machine still continues to fire when magneto is retarded to full extent? Should this be so, or should I be able to stop the engine from firing with the magneto lever fully retarded? If so, would you kindly state how I could alter same?—A.H., Leeds.

Naturally, the engine will not stop firing if you retard the spark. It is not intended that it should do so. If you wish to stop the magneto firing you must fit a switch, but the latter is not really necessary, and the engine will cool itself if you keep the exhaust valve raised when descending hills. The tip given in "Motor Cycles and How to Manage Them" infers that the exhaust valve should not be lifted under the circumstances mentioned.

Air Valves to Filler Caps.

In last week's issue I notice your remarks, "All petrol tanks should be fitted with an air valve to the filler cap. The usual hole provided allows petrol to slop over, etc." I shall feel obliged if you will give me the maker's name of the above.—J.G.

An extra air valve is made by inserting a piece of very small brass or copper pipe through the filler cap. This pipe may be brought through the centre of the cap and then bent round in the shape of a U, the top end being soldered to the inside of the cap. A hole may then be drilled clean through both sides of the pipe, when it will allow the air to enter the tank as the petrol level falls, and will not spill over. Or you can bore out and tap the filler cap to take an ordinary Rotherham cycle lubricator; this has a cap which can be opened occasionally to let in the air. The lubricator can be closed when tank is full.

Twin Cylinder Engines at 90°.

I want a magneto for a twin-cylinder engine with cylinders set at an angle of 90°, and have written to the manufacturers, but am informed that it is impossible to fire an engine with cylinders set at that angle with a magneto. They suggest fitting two magnetos, one for each cylinder. However, that idea does not appeal to me, as I do not consider it would be efficient.—H.A.R., Leeds.

H. Cooper, the winner of the first motor cycle race on the new Stadium. He rode Stanley Webb's 1908 Triumph.

It would not be satisfactory to fit a Simms or Bosch magneto to a V twin engine with the cylinders set at 90°, as this would split up the magnetic field too much. The only alternative is to fit one magneto to each cylinder, or to communicate with the makers of the Gianoli magneto, at 26, Boulevard Magenta, Paris. This is driven by a special patented system of gearing which it is claimed enables a magneto to fire V cylinders at any angle.

Knocking in Front Cylinder of Engine.

I have a practically new Peugeot 5 h.p. twin engine (Bosch magneto ignition), and there is a distinct knock in the front cylinder. The combustion chambers have been scraped, and there is no slackness or looseness in any of the bearings. Kindly say to what the knock is due, and if it is under-lubrication, would you advise me to bore holes in the web of crankcase to admit more oil? The knock is apparent even when the front plug is removed.—C.B.

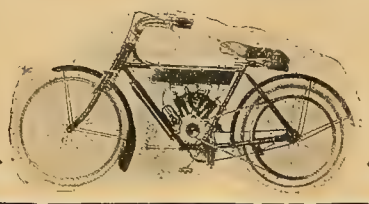
If the bearings are tight, as you say, the knocking must be due to under-lubrication of the front cylinder, and your suggestion of boring holes to admit more oil seems to be a good one. Probably you do not inject oil frequently enough, or there may be some portion of connecting rods or flywheels which touches the crank chamber. Twin-cylinder engines require a charge of oil every five miles at least if the pump is of the ordinary size.

Timing of the Valves.

I have had occasion to rebush both ends of connecting rod of my 3½ h.p. Minerva, and in re-assembling I have timed the same as follows: With piston at top of the stroke and connecting rod moving forward (same direction as motor would travel on road), exhaust valve commences to open a little before piston reaches bottom of stroke, and is nearly full open at bottom of stroke, and closes when piston reaches the top; then inlet valve commences to open on the piston commencing the next forward down stroke, and closes when piston is at lowest point. Is this the correct timing? Timing wheels are not marked. When connecting rod has made one circle, and is on the top of stroke, the valves just balance, i.e., by moving rod slightly forward inlet opens, and if moved slightly backward exhaust opens.—H.L.R., Lichfield.

The exhaust valve should close just as the piston reaches the top of its stroke. If the engine is timed in this way the exhaust opens a little before the end of the working stroke, and the inlet just after commencement of the suction stroke. You appear to have your engine correctly timed.

WHAT HAS BEEN SAID OF IT.



"A Genuine Lightweight. Among the most promising light motor cycles now on the market is the Moto-Reve. If finish and design are guarantees of good behaviour on the road—and to a great extent they certainly are—then the Moto-Reve is all right. . . . The gear is 1 to 6, and the nominal horse-power 2 (on the brake considerably more), so the machine, which, all on, scales but a little over 80 lbs., ought to be a good hill-climber. We may expect to see a considerable number of Moto Dreams about this summer."
—*C. B. Fry's Magazine*, May, '08.

"We have lately been riding a Moto-Reve motor bicycle. The machine is of the lightweight type, a type which we have always recommended, and which we believe is likely to become very popular. . . . We have taken it up some of the steepest hills around Co. Wicklow, and we have never so far had to assist by pedalling. It will run very slowly in traffic, while it will obtain close on forty miles an hour on the level. Owing to its light weight it is a very handy machine."
—*Irish Cyclist*, May 6th, '08.

MOTO REVE

WHAT IT HAS DONE.

LATEST SUCCESS!

ESSEX MOTOR CLUB'S HILL-CLIMB,

MAY 16th, 1908.

Event 1 (Lightweights up to 2½ h.p.)

MOTO-REVE 1st & Fastest Time

NOTE.—The combined weight of machine and rider was over 250 lbs., yet the hill was climbed **without pedalling.**

"The Moto-Reve is apparently highly appreciated in the Nottingham district. A local firm says: 'It has eclipsed any thing we could have imagined. We have already had the machine in thirty motorists' hands, and every one is simply charmed with the amount of power she shows, and the silent and smooth manner in which she runs. . . . We have tested it on all the worst hills in Nottingham, and it has never refused one; and the manner it picks up on hills is simply remarkable. . . . The motorists in Nottingham had not heard of the Moto-Reve; now they can talk of nothing else.'"
—*Cycle Trader*, March 20th, 1908.

A FINE LITTLE MOUNT.

"We have at present on trial a 2 h.p. Moto-Reve lightweight, which the English agents have been good enough to place at our disposal. This alone is a proof of the confidence they have in the mount, and after a hundred miles run we can assure our readers the Moto-Reve has not betrayed it."
—*The Motor Cycle*, February 5th, '08.

Your enquiry for full particulars is invited. Ask for List D.D.

THE MOTO-REVE CO.,
138, Gray's Inn Road, London, W.C.

Address of nearest Agent, where the Moto-Reve may be inspected, sent on request.

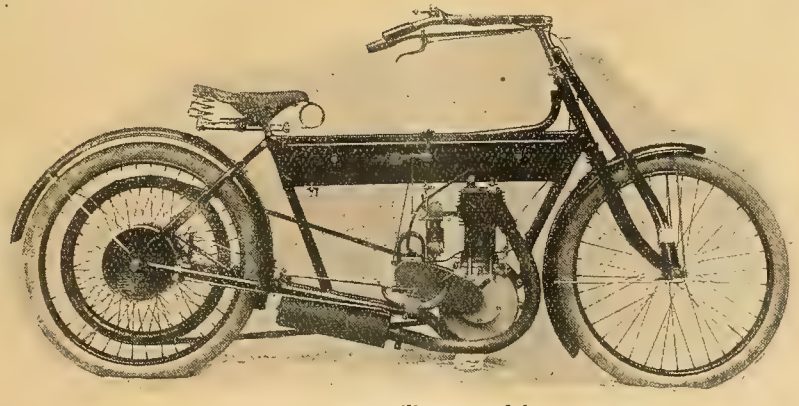
S. & H.

THE ROC

"The car on two wheels."

Note the comfortable low frame (duplex—specially suited for sidecar work), duplex tanks, large efficient silencer, magneto in correct position, Roc clutch and Roc speed gear, live back axle, hand starting.

Also note the new type 4 h.p. ball bearing engine.



4 h.p. new military model,
inclusive of Roc clutch and Roc speed gear, 48 guineas.

QUICK DELIVERIES OF ABOVE STANDARD MODEL.

Telephone—5712.
Telegrams—"Roc, Birmingham."

A. W. WALL, LIMITED,
ROC MOTOR CYCLE WORKS,
Aston Road and Dartmouth Street. BIRMINGHAM.

Illustrated booklet describes these machines.

"Simply Incomparable."

Enagh Manse, Ballymoney, Co. Antrim, 27th February, 1908.

"I have just heard of Mr. F. Newton's wonderful per ormance on Palmer Cord Tyres. It proves these to be on cars just what I have found them on a motor cycle – simply incomparable.

"I ride all days and in all weathers, and tyre trou les were the bane of my life till I got Palmer s Cords. Now I can ride for months without re-in atin .

"I feel it only due to give you this little bit of my experience, and wish you success.

Signed (Rev.) J. RAMSEY."

Whether for Cycle, Motor Cycle, or Motor,

PALMERS

are "simply incomparable." This all-round excellence is, of course, due to their sound construction on scientific principles.

Write for our Manual, gratis and post free.

THE PALMER TYRE LTD., Shaftesbury Avenue, LONDON, W.C.

PHÄNOMEN Motor Cycles.

The Hall Mark of Mechanical Efficiency. **With 2-Speed Gear.**

Death of the Starting Handle.

Any motor cyclist who has handled a **Phanomen** 2-speed machine, would not think of returning to the **old and laborious method of handle starting**, besides, think of the convenience and comfort, being able to **"start up" in the saddle.** No need to dismount in traffic to re-start the engine. Just the very thing for London traffic or touring in mountainous districts. The gear can be changed so rapidly without any shock, and **both feet being free** to preserve balance when **starting or turning in very confined places,** makes this gear stand out as quite the finest thing in variable gears yet put on the market. **Its reliability** has been proved in both this year's **Quarterly Trials.**

Trial runs with pleasure, by appointment.

A Customer writes—

I have a 3 h.p. Phanomen, magneto, 2-speed NALA Gear, and am delighted with it; it is the centre of attraction round here where the NALA is hardly known. I am endeavouring to persuade my friends to speculate in a Phanomen, as they seem quite satisfied with its performances and **I will not sell mine at any price.** I have had nine motor cycles, but the Phanomen beats all.

Showroom: 49, King Square, President Street, Goswell Road, E.C.; also at the Service Co., Ltd., 292, High Holborn, W.C.

Agent for Cardiff and District—ROBERT BEVAN, 31, Castle Street, Cardiff.

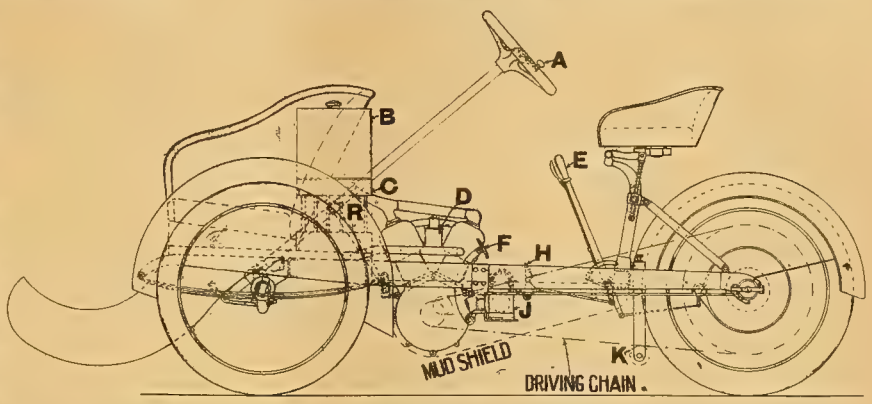
PHANOMEN MOTORS.

A NEW PATTERN TRICAR FOR THE END-TO-END.

A FEW days ago we had the pleasure of examining at the works of the Rex Motor Mfg. Co., Ltd., Coventry, an entirely new pattern Rex Litette which is being built for Miss Muriel Hind, who intends to drive it in the Auto Cycle Union End-to-end Trial, July 13th-18th.

The tricar was not in a sufficiently advanced stage to photograph it, but the line drawing will enable our readers to gain an idea of its construction. There are several details which are worthy of mention.

The frame is of channel steel, supported in front on springs, and the only portions of the frame construction which extend above the main frame are the raked steering tube and a tubular support for the Rex cantilever seat. The engine is of the twin-cylinder water-cooled V-type. It will be noticed that the petrol tank is placed on the top of the two nests of radiators and the water tanks, leaving the frame open and suitable for a lady. The usual Rex two-speed gear in conjunction with the Roc clutch is embodied in the hub of the rear wheel, but in place of belt transmission there is a single chain, with a jockey pulley to keep it always at the same tension and prevent it coming off the teeth of the chain wheels. On the standard Litette the clutch and two-speed gear are operated by means of pedals pivoted on the footrests, but Miss Hind's new tricar will have separate pedals for the clutch and brake, and in addition a side hand lever controlling another powerful rear wheel brake. The machine will be on the road very soon after this description and illustration have appeared, and we recommend our readers who are interested in this form of passenger motor cycle to keep a close eye on the Rex Litette, and note its performances in the forthcoming End-to-end Trial.



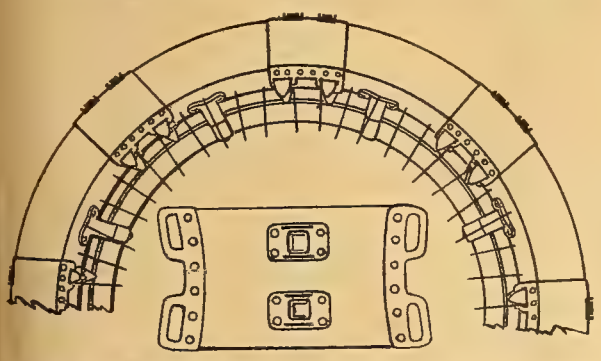
A new pattern Rex Litette which is being built for the End-to-end Six Days' Trial. Miss Muriel Hind will enter and drive this tricar.

A. Carburetter and magneto control. B. Petrol tank. C. Water tank. D. Carburetter. E. Hand brake lever. F. Clutch pedal H. Brake pedal. J. Magneto. K. Jockey pulley. R. Radiators.

THE N.S.U. DETACHABLE NON-SKID.

THE road surface at this time of the year does not tend to make one think seriously of anti-skid devices, but in the particular device we are about to describe certain advantages are embodied, which render it suitable for any weather. Even at the present time heavy showers of rain render the roads dangerously greasy in certain districts, so that any form of anti-skid which may be quickly placed in position will be eagerly welcomed.

We recently called at the N.S.U. Motor Co., Ltd., 78, Charlotte Street, W., and were shown the N.S.U.

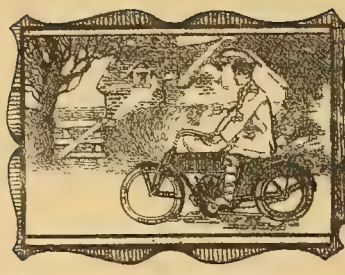


device, which consists of eight pairs of hooks fastened at regular intervals to the rim of a motor cycle rear wheel. These become permanent fixtures. For each pair of hooks a leather band about 3½in. wide is provided, which is easily placed in position if the tyre be slightly deflated. The bands are provided in the centre with square metal plates having rectangular projections. The result is that safety on greasy roads is assured, and danger of slipping on stone setts minimised owing to the amount of rubber exposed being greater than the amount of studded leather. These non-skids need only be used in cases of emergency, as they are so quickly removable, and, moreover, they do not interfere to any extent with the resiliency of the tyre or detract from the power of the engine. Provided the rims will admit of it, the non-skids in question may be fixed to any make of machine. When not in use, the bands can be detached and stowed on any convenient portion of the motor bicycle. Not only the bands, but also the studs, may be renewed when worn.

The device seems to be a distinctly practical one, and quite worthy of this enterprising firm.

Rex motor cycles were very successful in both closed and open events during the week ending May 16th. As will be seen on reference to our "Club News" pages last week, Rex machines scored at Manchester M.C. Hill-climb, Perth and District M.C.C. Consumption Trial, Essex M.C. Hill-climb, Edinburgh M.C.C. Hill-climb, Barnsley Victoria C.C. Hill-climb, and Leeds M.C.C. Reliability Trial for the Kelly Cup.

It may interest many motor cyclists to know that the Continental Tyre Company are marketing a butt-ended tube, the quality of which it is unnecessary to dilate upon, and those who favour this form of tube would do well to write to 102, Clerkenwell Road, E.C., for further particulars



CURRENT CHAT.

SPECIAL FEATURES.

A.C.U. SUTTON BANK HILL-CLIMB.
Photographs of the hill.

THE MOTOR CYCLE T.T. RACE, 1908.

Barnes's Reappearance on the Track.

Geo. A. Barnes signed a contract last week to race in Paris on the 4th and 11th of June, the contract stating that he is to meet any motor cyclist the management like to put forward, and it is very probable that Olieslagers will be one of his opponents. It will be remembered that on Barnes's last appearance in Paris he made a big name for himself, but the accident at Buffalo put a stop to motor racing for the time being, consequently Barnes returned to England.

Motor Cyclists as Royal Flag Bearers.

Describing the mimic battle at Aldershot last Monday week, *The Daily Express* said: "Shortly after eleven o'clock, which was 'dawn' in the theory of the war game, three motor cars, preceded by the motor cyclist scouts flying the Royal flag, sped up the hill from Aldershot Town Railway Station. The King was in the first car, and the Queen, who wore a mauve costume, occupied the second, with her lady-in-waiting. Staff officers brought up the rear. Wherever the tide of battle rolled the King and Queen, accompanied by glittering staff officers, followed in swift motor cars. Ahead of them sped military scouts on motor bicycles, from which the Royal Standard fluttered on a flagstaff attached to each handle-bar. The passing of the Royal party could thus be followed from any high point of the battle ground by the flag-adorned motor cycles."

The New Chairman of the R.A.C.

Mr. C. D. Rose, M.P., finds himself unable to undertake the duties of the chairmanship of the R.A.C., but the committee has, fortunately, obtained the consent of H.S.H. Prince Francis of Teck to accept the chairmanship.

Entries for the End-to-end Run.

Although the preliminary regulations for the A.C.U. six days' ride from Land's End to John-o'-Groat's were only issued last week, the following entries have already been received: J. Tassell, Matchless; W. H. Wells, Vindec Special; S. W. Carty, N.S.U.; W. Ridler, Leader; and E. Nelson, Rex. Of the five mentioned four are private owners. Intending competitors are asked to forward their entries to the A.C.U. secretary early in order to facilitate the organisation of the trial. Moreover, there is a risk of late entries being refused if a large number are received.

A 20 h.p. Motor Bicycle.

The most powerful bicycle in the North of England is a 20 h.p. twin-cylinder engined machine, designed, built, and owned by Mr. C. B. Grimshaw, of Sunderland. The cylinders measure 115 by 125 mm., and the total weight of the machine is 300 lbs.

Speed Trials at Saltburn.

The Yorkshire Automobile Club's speed trials on the sands between Saltburn and Marske will take place on Saturday, June 27th, beginning at 8.30 a.m., if the tide permits. Usually a number of motor cyclists ride to Saltburn to witness these trials.

FUTURE EVENTS.

May 30—Auto Cycle Union Open Hill-climb on Sutton Bank, Yorkshire.
June 5-8—M.C.C. LONDON-EDINBURGH RUN and return for Schulte Cup Competition, and Special Cup for Motor Bicyclists.
,, 6-8—Brooklands A.R.C. Whitsun Meeting.
,, 8 (Whit-Monday)—St. Albans Motor Cycle Races.
,, 8—Tunbridge Wells Motor Cycle Races.
,, 13—Essex Beagles Ten Miles Motor Cycle Handicap at the Stadium.
,, 20—Entries close for M.C.C. Team Competition at Daventry.
,, 24—London United Tramways Five Miles Tourist Motor Cycle Handicap at the Stadium.
,, 27—M.C.C. INTER-TEAM TRIALS for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., Birmingham M.C.C., Lincolnshire M.C.C., Liverpool M.C., North West London M.C.C., and Sheffield and Hallamshire M.C.C.
,, ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
,, 4—Brooklands A.R.C. Meeting.
,, 6-7—A.C.F. Grand Prix Races for Cars.
,, 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
,, 14-15—M.C.U.I. (Ulster Centre) Open 400 Miles Reliability Contest.

The Tourist Trophy Race.

It is highly probable that the Tourist Trophy Race for motor cycles in the Isle of Man will be held in September instead of October. There are many things in favour of the earlier month, and we hope it can be arranged.

Fowls on the Road.

While riding on the Chester Road, Sunderland (the main highway from Sunderland to Durham), in the vicinity of North Hall Farm, Mr. T. Jameson, of the Sunderland and District M.C.C., had the misfortune to kill a hen, and was himself thrown into a ditch, resulting in his forehead and knee being badly cut. We understand fowls frequently run across the road from one field to another at this point, and several other spills have occurred, so motor cyclists should ride warily when near North Hall Farm.

"Cudham Bank" Sounds Strange.

To the Londoner the Yorkshire way of referring to every hill as a "bank" sounds as strange as "yonder," "coop," and other words peculiar to the broad Yorkshire dialect. In the South, of course, bank is only used in referring to riverside slopes and margins of the road, and to enquire of a Southerner whether his machine would climb banks would be akin to asking if it could be ridden over ploughed fields!

Sir Frederic Phillipson Stow, Deceased.

It is with great regret that we have to announce the death in London of Sir Frederic Phillipson Stow. The late Sir Frederic, who was created a Baronet last year, was one of the founders of the De Beers Company. Motor cyclists will long remember the kindness the late Baronet extended to the Auto Cycle Union in allowing the use of his grounds at Blackdown House, Haslemere, for its yearly hill-climb.

Getting Further Out.

Many motor cyclists are following the example of car owners and taking up their residence in the more outlying suburbs, where there are green fields, smoother roads, and no 'buses, trams, and deadly tram lines. Localities like Clapham and Brixton are losing popularity. Now motor owners prefer such places as Beckenham, Bromley, or Chislehurst, where they gain immediate access to the country and their favourite roads. Enterprising builders and estate agents at these places offer inducements by agreeing to build up-to-date motor houses at a five per cent. rental. Truly, the motor is responsible for a lot of changes. Even Westerham and the district is being opened up to city goers by a new motor 'bus service to Sevenoaks Station.

Whit-Monday Track Races.

On the St. Albans track, on Whit-Monday, the following motor cycle races will be held: Five miles invitation scratch race, five miles handicap (limited to engines 76 by 76 mm.), five miles tourist handicap (for machines not exceeding 85 by 85 mm. with a 4 to 1 gear). The hon. sec. of the meeting is A. F. Slater, 1, Bedford Park Road, St. Albans.

At Tunbridge Wells there will be a three miles scratch race and a five miles handicap (limited to engines 76 by 76 mm.) Hon. sec., H. Saville, St. John's, Tunbridge Wells.

The M.C.C. Team Competition.

The Sheffield and Hallamshire M.C.C. is the eighth club which has signified its intention of sending a team to compete for *The Motor Cycle* Challenge Cup at Daventry on the last Saturday in June.

Police Trap.

We are informed by a correspondent that the police are particularly active near Lancaster. At Scorton, two miles south of the aforementioned town, our correspondent was stopped for riding at twenty-three miles an hour, although he was aware of the trap and was travelling very slowly at the time.

Police Traps near Lancaster.

Motor cyclists riding through Lancaster should be watchful between Garstang (eleven miles south) and Burton (eight miles north of Lancaster), as the police have lately been very busy timing motorists, and the magistrates give every encouragement to the police.

South-eastern Auto Cycle Association.

Unattached riders in South-east London can join the above association at a subscription of 5s., and derive benefits similar to members of clubs which are affiliated to the A.C.U. The hon. secretary's address will be found on the last page of this issue.

A.C.U. Sutton Bank Hill-climb.

We are informed by a correspondent that the police will be particularly energetic on different parts of the road between York and Scarborough during the season, especially on Military Sunday, 31st May, which follows the Sutton Bank Hill-climb on Saturday, 30th. London motor cyclists should note the route referred to in our issue of May 13th, page 377.

The Rule of the Road.

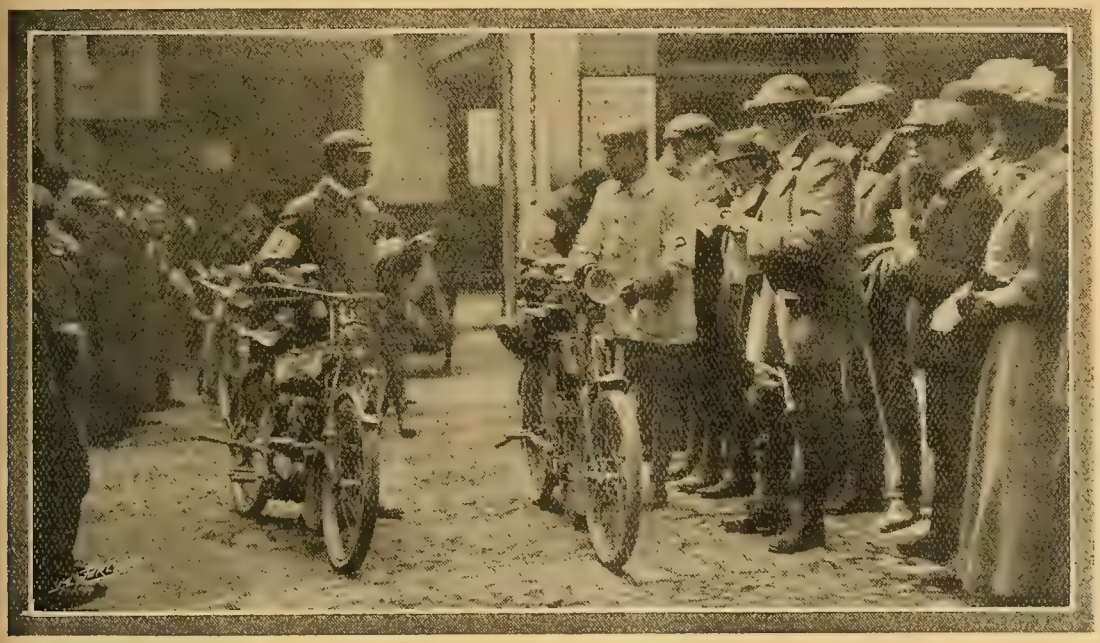
We have received a very lengthy letter from the hon. sec. of the Junior Automobile Association, Mr. C. W. Brown. This letter relates to a very decided rule of the road clearly laid down by Act of Parliament. Our space is so crowded it is impossible to reproduce the letter *in extenso*, but a list of offences under section LXXVII. (78) will be found on pages 114 and 115 of the Motor Car Acts 1896 and 1903, published by Iliffe & Sons Ltd., 20, Tudor Street, E.C.

An Enterprising Club.

In addition to being represented in the team competition at Daventry next month, the Sheffield and Hallamshire M.C.C. will have four members in the Land's End to John-o'-Groat's run in July, as the president (Mr. J. H. Hall), Messrs. F. Dover, F. W. Farrer, and Jno. Haslam, are entering for this classic event.

A Smart Answer Wins a Motor Bicycle.

The result of the competition for the K.D. lightweight motor bicycle is announced this week. The judge, Mr. B. H. Davies, has decided that Mr. Ernest A. Carr, South Western Police Court, Lavender Hill, S.W., gave the best reason why he should be awarded the K.D. machine offered by Leo Ripault and Co., 64a, Poland Street, London, W., his reason being: "Because my life as a magistrates' clerk has been devoted to the interests of the Cadi (K.D.)"



The North West London Twelve Hours' Reliability Run, London to Coventry and back. Starting competitors on the return journey from the King's Head Hotel, Coventry. Left hand, No. 1, A. Stanley Phillips (5 h.p. Vindec). Right hand, No. 2, E. W. Brighten (2½ h.p. Ariel). The checker on the right is E. J. Hardy (Coventry M.C.).

The Motor Cycle and the Lay Press.

A good sign is the increasing friendliness of the lay press towards the sport and pastime of motor cycling. The daily papers refer more often to the pleasures to be derived from the motor cycle, and in the June issue of Fry's *Magazine* there is an interesting article on the subject which makes excellent reading.

The World's Hour Record.

Joseph Guippone's world's motor cycle record of 63 miles 1,078 yards, accomplished at the Parc des Princes track, Paris, in December of 1905, does not promise to be disturbed as far as riders abroad are concerned, but it is rumoured that three well-known British racers contemplate early onslaughts. The venue will, of course, be Brooklands, and there is no doubt that with an up-to-date machine several miles can be added on to the present world's best for 60m. One of the daring cracks suggests seventy miles

The End-to-end Trial in July.

The preliminary regulation and entry forms for the A.C.U. Land's End to John-o'-Groat's six days' trial of motor cycles, July 13th to July 18th, are now obtainable from the secretary, 18, Down Street, Piccadilly, W. In 1906 no less than ninety-three machines were entered for this trial, and large crowds welcomed the riders in the numerous towns and villages passed through. The present competition promises to be even a greater success, so many enquiries having been received by the A.C.U. secretary with regard to the event. Entries close four weeks hence

Cambridge M.C.C. v. Cambridge University M.C.C.

The result of the inter-club hill-climb at Croydon Hill on Saturday last between seven representatives of each club was: Average figure of merit C.M.C.C., 12.813; average figure of merit C.U.M.C.C., 13.836. The weather was good and the fixture a great success. On formula, the competitors finished in the following order:

1. H. H. Harper, 2¾ h.p. King.
2. W. King, 2¾ h.p. King.
3. C. W. Wilson, 2¾ h.p. King.
*4. F. Dickson, 5 h.p. twin Vindec.
*5. E. Dickson, 5 h.p. twin Vindec.
*6. W. Hutchinson, 3½ h.p. Triumph.
7. F. T. Cox, 2¾ h.p. King.
8. F. Pryor, 2¼ h.p. Humber.
*9. J. M. Oakey, 5 h.p. twin Vindec.
*10. W. G. Ross, 3½ h.p. Triumph.
11. A. J. Mihill, 2¾ h.p. King.
*12. A. R. Murray, 3½ h.p. Triumph.
*13. F. Pilkington, 3½ h.p. Triumph.
14. B. L. Peters, 3½ h.p. Minerva.

*University Team.

North West London M.C.C.

THE twelve hours run to Coventry and back on Saturday last attracted twenty-six entries, and of these twenty-five started. The competitors and friends were at the starting point (Jack Straw's Castle, Hampstead Heath), at 6.45 a.m. It was a beautiful, bright morning, and all looked forward to a good run. The machines were inspected and sealed by the judges, and punctually to the minute the first competitor was despatched, the remainder followed at half-minute intervals without any delay.

The route lay through Edgware, and immediately afterwards Brockley Hill was encountered. After this there was a clear run through Watford to Berkhampstead, the first "check." Competitors were not long in getting away again, and on through Tring and Aylesbury to Bicester, the second "check." After this the road became more tortuous to follow, but owing to the excellent manner in which Mr. A. Stanley Phillips, the trials honorary secretary, had arranged for the marking and marshalling of every corner, there was no difficulty in following the correct route. After traversing the magnificent country about Enstone and Long Compton, the final "check" at Shipston was reached. Here most of the competitors took in petrol before starting on the last stage through the interesting country about Warwick and Kenilworth. Close to the latter town an unfortunate mishap occurred to F. Thomas, the steering column of his machine breaking. Fortunately, he was not hurt, and after putting in for repairs he was able to return to London with the rest of the competitors.

Coventry was reached in good time by the majority. An hour here was allowed for lunch, which was taken at the King's Head Hotel. The thanks of the club are due to Mr. Eric W. Walford and the members of the Coventry Motor Club for their invaluable assistance in checking and timing the arrival and departure of competitors at Coventry, and also for marking and patrolling the road from Shipston.

Again punctually to time the survivors were despatched on the return journey, which was made by the same route as the outward journey. There were large crowds at Hampstead Heath to see the finish, and had it not been for the assistance of the police some difficulty would have been experienced in taking the times of the returning competitors.

The following completed the double journey within schedule time, and will each be awarded a silver cup:

A. Stanley Phillips (5 h.p. Vindec), G. Rowden (3½ h.p. Bat), E. Gwynne (3½ h.p. Vindec), Miss M. Hind (5 h.p. Rex), W. H. Pidgeon (3 h.p. Goldhurst), C. J. Burton (3½ h.p. Vindec with sidecar), S. A. Knaggs (2½ h.p. Ariel), G. H. Hollis (3½ h.p. Triumph), H. G. Cove (3½ h.p. H.G.C.), W. A. Jacobs (3½ h.p. Rex), G. Bennett (3 h.p. Marlborough), M. Tuckmann (3½ h.p. Triumph), C. H. Crole-Rees (6 h.p. Advance), M. Campbell (5 h.p. Vindec), W. G. Barton (3 h.p. Triumph), T. G. Blundell (3½ h.p. Triumph), D. K. Edwards (2¾ h.p. M.M.C.), and E. W. Ashworth (7 h.p. Minerva) E. W. Brighten (2½ h.p. Ariel), and C. Williams (2¾ h.p. Brown) finished just outside schedule time.

The club is greatly indebted to the judges, Messrs. R. G. Booth and L. Van der Velde, and all the checkers.

The starting point of the North West London M.C.C. Twelve Hours' Reliability Run. Competitors and friends assembled at Jack Straw's Castle, Hampstead Heath on Saturday last. Time, 6.45 a.m.

Entries for the A.C.U. Sutton Bank Hill-climb.

THE following is a list of the entries received by the secretary of the Auto Cycle Union up to Friday night for this event, which is to take place on Saturday:

Class 1, lightweight machines.—Gordon L. Fletcher (2 h.p. Moto-Rêve) and Robert G. Bell (2 h.p. Moto-Rêve).

Class 2, maximum bore 82 mm.—R. M. Brice (3½ h.p. Brown), Eric S. Myers (3½ h.p. Triumph), W. A. Jacobs (3½ h.p. Rex), J. P. Le Grand (2½ h.p. Matchless), Felix Scriven (3½ h.p. Rex), Robert Ellis (3½ h.p. Rex), H. Newey (3½ h.p. L.M.C.), F. W. Applebee (3½ h.p. Rex), and S. W. Carty (3¾ h.p. N.S.U.)

Class 3, single cylinders, maximum bore 85 mm.—R. M. Brice (3½ h.p. Brown), Gordon Gibson (3½ h.p. Triumph), W. E. Grange (3½ h.p. Triumph), Eric S. Myers (3½ h.p. Triumph), W. A. Jacobs (3½ h.p. Rex), W. G. McMinnies (3½ h.p. Triumph), W. J. Newsome (3½ h.p. Triumph), J. Marshall (3½ h.p. Triumph), Robert Ellis (3½ h.p. Rex), F. W. Barnes (3½ h.p. Zenette), and F. W. Applebee (3½ h.p. Rex).

Class 4, multi-cylinders, maximum bore 76 mm.—W. H. Wells (5 h.p. Vindec Special), J. E. Truefitt (5½ h.p. G.B.), J. Scriven (5 h.p. Rex), T. H. Tessier (6 h.p. Bat), —. Gibson (———), J. F. Mallett (6 h.p. N.S.U.), F. W. Applebee, sen. (5 h.p. Rex), F. W. Applebee (5 h.p. Rex), and G. W. Raper (6 h.p. N.S.U.)

Class 5, multi-cylinders, maximum bore 85 mm.—W. H. Wells (5 h.p. Vindec Special), J. Scriven (5 h.p. Rex), T. H. Tessier (6 h.p. Bat), Robert Ellis (7-8 h.p. Minerva), J. F. Mallett (6 h.p. N.S.U.), F. W. Applebee (5 h.p. Rex), and F. W. Applebee, jun. (5 h.p. Rex).

Class 6 (open to entrants in any of the above classes).—W. H. Wells (5 h.p. Vindec Special), J. E. Truefitt (5½ h.p. G.B.), J. Scriven (5 h.p. Rex), W. E. Grange (3½ h.p. Triumph), Eric S. Myers (3½ h.p. Triumph), W. A. Jacobs (3½ h.p. Rex), W. G. McMinnies (3½ h.p. Triumph), W. J. Newsome (3½ h.p. Triumph), J. Marshall (3½ h.p. Triumph), Robert Ellis (7-8 h.p. Minerva), F. W. Applebee (5 h.p. Rex), and F. W. Applebee, jun. (5 h.p. Rex).

Class 7, variable gear class.—C. A. Palmer (5 h.p. Roc), W. Milners (3½ h.p. Phelon and Moore), H. Howarth (5 h.p. Vindec Special), H. C. Griffin (3½ h.p. J.A.P.), —. Gibson (———), R. Moore (3½ h.p. Phelon and Moore), G. E. Vint (3½ h.p. Phelon and Moore), F. W. Barnes (3½ h.p. Zenette), and G. W. Raper (6 h.p. N.S.U.)

Class 8, passenger class.—R. M. Brookes (9 h.p. Riley), R. B. Smith (6 h.p. N.S.U.), and A. D. Nicholson (9 h.p. Riley).

Motor Cycle Racing at Birmingham.

THREE-CORNERED MATCH AND OTHER RACES.

Start of the final race for the Five Miles Tourist Handicap. Reading from the right: V. Yates (3½ h.p. Rex), J. C. Smyth (3½ h.p. Rex), H. A. Collier (3½ h.p. Matchless-Jap), and C. R. Collier (3½ h.p. Matchless-Jap). Yates won in 7m. 48s.

SOME four or five years have elapsed since motor cycle racing was a feature of sports meetings at Aston. At the *Sport and Play* tournament on Saturday last there were five events, including a series of matches between H. Martin, C. R. Collier, and H. V. Colver. It is estimated about 12,000 people were present.

Five miles tourist motor cycle handicap: Heat I.—C. R. Collier (3½ h.p. Matchless-Jap), scratch, won easily. Time, 7m. 58⅘s.

Heat II.—W. Pollard (2 h.p. Central-Minerva), 80s. start, lapped Yates (3½ h.p. Rex), 25s. start, but was disqualified owing to high gear and 1¾in. tyres instead of 2in., and race awarded to Yates.

Heat III.—A. J. Greenway (2¾ h.p. Humber) retired. This heat was won by H. A. Collier (3½ h.p. Matchless-Jap). Time, 7m. 36⅘s.

In the final Yates rode splendidly, and practically maintained his start, C. R. Collier being 2nd and J. C. Smythe 3rd. H. A. Collier punctured. Time, 7m. 42s.

One mile race between H. Martin and C. R. Collier.—Collier rode very well, and won by about ten yards. Time, 1m. 30⅘s.

Three miles race, C. R. Collier *v.* H. V. Colver.—Colver was riding Martin's machine, as his own refused to fire, and this undoubtedly handicapped him. Collier won in 4m. 15⅘s.

Five miles race, H. V. Colver *v.* H. Martin.—Colver rode his own machine, and put in a splendid race, winning by about twenty yards in 7m. 1⅘s.

C. R. Collier therefore won the match by two points, Colver 2nd, Martin 3rd.

One mile tourist motor cycle handicap.—The outstanding feature of this event was the success of the three Rex machines ridden by Barker, Smythe, and Yates. The Colliers were giving starts up to 300 yards. In the final for this race, Barker on the 2¾ h.p. Rex was 1st, Smythe 2nd, and Yates 3rd. Time, 1m. 32⅕s.

Five miles light motor cycle handicap, limited to 76 by 76 mm.—The competitors were allowed to ride without silencers on their machines. Only two heats were contested, and in the final the placing was Colver, Martin, C. R. Collier, and Edmundson. The last-named was riding a Derwent with J.A.P. engine, but was badly troubled with misfiring, or would have done much better, as his machine evidently possesses a good turn of speed. Time, 7m. 3⅗s.

The M.C.C. London to Edinburgh Ride.

COMMENTS AND LIST OF ENTRIES. By S. H. FRY.

JUDGING by the number of entries to date for this event its popularity with all classes of motorists remains as strong as ever. Indeed, the number of members of the club who have intimated their intention of starting from Highgate on Friday evening, June 5th, this year creates a record. As the club committee meet after these lines are written to elect new members, it is extremely probable that the total number of entries will reach the figure of 110.

The principal entry naturally consists of motor bicycles, from the little 1¼ h.p. Motosacoche to the great 9 h.p. J.A.P. This is as miscellaneous an entry as any motoring sportsman could desire. The tricar entry so far consists of a fleet of Lagondas, and the sidecars are limited to two only. Personally, I am disappointed in this last, as the sidecar seems to me so essentially the poor man's two-seated motor car.

As regards the car entries, I would like to say that almost all the drivers are old motor cyclists, many of them (myself amongst them) still owning and driving motor cycles. (See *The Autocar* for May 30th, where car entries will be dealt with.)

The arrangements along the route are well in hand, and almost all the checks and controls are settled, and, figuratively speaking, the men in their places. Most of our old friends are continuing to help, and very kind indeed it is of them, and much appreciated.

All that I am hoping for now is fine weather and good roads, and the pleasure of being able "to get there" myself so as to meet the host of the successful ones. One last word: Please drive considerately and cautiously all the time, so that in future years our annual run may be a pleasant anticipation to others as well as members of the Motor Cycling Club.

The M.C.C. London to Edinburgh Ride.—

BICYCLES.

Rider and machine.	No. of cylinders.	Ignition.
*S. G. Frost (4½ h.p. Minerva)	2	Accu.
S. Webb (3½ h.p. Triumph)	1	Mag.
*J. S. Harwood (3½ h.p. Triumph)	1	Mag.
C. G. Myer (9 h.p. Bat)	2	Mag.
W. H. Wells (5 h.p. Vindec Special)	2	Mag.
*A. G. Reynolds (2¾ h.p. Bat)	1	Accu.
W. H. Lane (3½ h.p. Triumph)	1	Mag.
*E. Gwynne (3½ h.p. Vindec)	1	Mag.
H. G. Cove (4 h.p. Own Make)	1	Mag.
F. Mussell (3½ h.p. Quadrant)	1	Accu.
W. A. Sale (5 h.p. Vindec Special)	2	Mag.
A. M. Tatham (3½ h.p. Matchless)	1	Mag.
Ade S. Hutton (6 h.p. Primo)	2	Mag.
A. D. Draper (3½ h.p. Matchless)	1	Mag.
V. Olsson (5 h.p. Vindec Special)	2	Mag.
A. D. Nicholson (3½ h.p. Triumph)	1	Mag.
G. W. Raper (6 h.p. N.S.U.)	2	Mag.
J. S. Tweddle (3¾ h.p. N.S.U.)	1	Mag.
C. J. Seed (5 h.p. Vindec Special)	2	Mag.
*L. A. Baddeley (3 h.p. Baddeley)	1	Mag.
R. M. Brice (3½ h.p. Brown)	1	Mag.
H C. Horswill (3½ h.p. Brown)	1	Mag.
S. T. A. Oldfield (3½ h.p. Quadrant)	1	Mag.
*T. F. Cox (7-8 h.p. Minerva)	2	Accu.
H. Collins (3¼ h.p. Norvic)	1	Accu.
A. W. Bentley (3½ h.p. Triumph)	1	Mag.
W. O. Bentley (3½ h.p. Bell)	1	Mag.
T. J. Weightman (3½ h.p. N.S.U.)	1	Mag.
P. H. Trotman (3½ h.p. Triumph)	1	Mag.
H. G. Bell (2¾ h.p. F.N.)	1	Mag.
G Brough (3½ h.p. Brough)	1	Accu.
B. Cumberland (3½ h.p. Triumph)	1	Mag.
Miss Muriel Hind (5 h.p. Rex)	2	Mag.
H. S. Myer (3½ h.p. Rex)	1	Mag.
*H. Williamson (3½ h.p. Rex)	1	Mag.
Sir R. K. Arbuthnot (3½ h.p. Triumph)	1	Mag.
J. L. Barratt (5-6 h.p. Peugeot)	2	Accu.
D. S. Baddeley (5 h.p. Baddeley)	2	Mag.
I. B. Hart-Davies (3½ h.p. Triumph)	1	Mag.
R. C. Davis (6 h.p. Griffon)	2	Mag.
H. G. R. Slingo (5½-6 h.p. Griffon)	2	Accu.
A. J. Sproston (5 h.p. Vindec Special)	2	Mag.
*C. H. Crole-Rees (6 h.p. Advance)	2	Mag.
J. Stuart-White (1½ h.p. Motosacoche)	1	Accu.
J. V. Robinson (1½ h.p. Motosacoche)	1	Accu.
W. Fletcher (7-9 h.p. Bat-Jap)	2	Mag. and accu.
E. Pond (5 h.p. Vindec Special)	2	Mag.
G. Gibson (3½ h.p. Triumph)	1	Mag.
A. H. Forbes (3½ h.p. Triumph)	1	Mag.
A. G. Fenn (3⅜ h.p. Rex)	1	Accu.
*F. White (5 h.p. Rex)	2	Mag.
C. C. Cooke (3½ h.p. Triumph)	1	Mag.
A. B. McDonald (3½ h.p. Triumph)	1	Mag.
*W. A. Jacobs (3½ h.p. Rex)	1	Mag.
A. G. Peppercorn (2¾ h.p. Anglian)	1	Accu.
M. Campbell (5 h.p. Vindec Special)	2	Mag.
Dr. C. B. Moss-Blundell (3½ h.p. Zedel)	1	Dry batt.
*J. P. Le Grand (2½ h.p. Matchless)	1	Mag.
*G. L. Fletcher (2 h.p. Moto-Rêve)	2	Mag.
W. H. Bashall (3½ h.p. Triumph)	1	Mag.
H. C. Sayer (3½ h.p. Triumph)	1	Mag.
*W. Pershke (4 h.p. Diamond)	2	Mag.
Dr. C. Gibbons (3½ h.p. Minerva)	1	Accu.
*A. Stanley Phillips (5 h.p. Vindec)	2	Mag.
C. F. Lacey (3½ h.p. Fafnir)	1	Mag.
*O. L. Summers (3½ h.p. Vindec)	1	Mag.
A. Walton (5 h.p. Vindec Special)	2	Mag.
J. Cooper (3½ h.p. Triumph)	1	Mag.
V. H. Deuchar (5 h.p. Vindec Special)	2	Mag.
*R. O. Clark (5 h.p. F.N.)	4	Mag.
A. T. Browett (3½ h.p. Triumph)	1	Mag.
G. E. Roberts (3½ h.p. Triumph)	1	Mag.

* Entrants for Schulte cup competition and special cup for motor bicyclists.

TRICARS.

Dr. E. W. Brewerton (10 h.p. Lagonda)	2	Accu.
M. W. Randle 10 h.p. Lagonda)	2	Accu.
F. Cozens (10 h.p. Lagonda)	2	Accu.
H. S. Freeman (10-12 h.p. Lagonda)	2	Accu.

SIDECARS.

W. Montgomery (3½ h.p. Minerva)	1	Accu.
P. W. Vinsen (6 h.p. Clifton-Jap)	2	Accu.

CLUB NEWS.

Essex M.C.

The inter-club trial with the West Essex A.C. last Saturday resulted in a tie, and the competition will be run again.

Southend and District M.C.

A party of members and friends of this club, numbering about twenty, met last Wednesday evening for an informal club supper at the Crown Hotel, Rayleigh. The event proved a most successful and enjoyable one.

Perth and District M.C.C.

The Perth and District and Falkirk and District M.C.C.'s had a friendly meet at Rumbling Bridge, which is practically equidistant from the two headquarters. There was a good turnout, and as weather and road conditions were favourable, the run was much enjoyed. Next Saturday a reliability trial will be held.

Hull and East Riding A.C.C.

A large party of members propose attending the A.C.U. hill-climb at Sutton Bank on Saturday, and York the following day (Military Sunday). The first detachment will leave the Paragon Square, Hull, at 6.30 p.m. on Friday, staying the night at the club headquarters in York. The second will assemble at the Paragon Square on Saturday at 9 a.m. Both parties will meet in York and proceed to Sutton Bank, and return to York for the night.

Western District M.C. (London).

A reliability run was held on the 16th inst., the course being from Hounslow to Bath and back, a distance of 188 miles. The winner proved to be the captain of the club, who was mounted on a brand new machine. Result:

1. H. Vowler (3½ h.p. Triumph).
2. H. Kirk (5½ h.p. twin Brown).
3. R. Babbage (3½ h.p. Minerva).

The run in conjunction with the Eastern District M.C. will be held on June 28th, not May, as announced in former issue.

Coventry M.C.

For the twelve hours club run to Holyhead (165¼ miles) on Saturday next thirteen motor bicyclists have entered, one tricarist, and thirteen car owners. Competitors will be started at 7 a.m. from the railway bridge on the Holyhead Road, Coventry.

Barnsley Victoria C.C. (Motor Section).

The official results of the hill-climb are given on the next page. The list of awards is: 1st, Triumph gold medal; 2nd, Pratt's gold medal; 3rd, prize given by Mr. Greenwood, Leeds; 4th, Mr. J. R. Parker's medal for fastest time, won by T. Dunk (5½ h.p. Rex). P. G. Cockroft, after the event, ascended the hill in the fastest time, but we are asked to point out that he is not a member of the organising club.

Halifax and District M.C.C.

The first meeting was held on Thursday last, when the following officers were elected: President, Mr. A. H. Forbes; vice-president, Dr. Hughes; captain, Mr. C. Clarkson; vice-captain, Mr. H. Naylor; hon. treasurer, Mr. M. Youngman; hon. secretary, Mr. H. D. Helliwell, 7, Harrison Road, Halifax. It was decided to affiliate to the A.C.U., and Maude's Temperance Hotel was appointed headquarters.

Leeds M.C.C.

Thirteen competitors for the Kelly Cup on the 16th inst. made absolute non-stop runs, viz., Messrs. Atkinson, Bagshaw, Cockroft, Durant, Greenwood, Forbes, Hickman, Hyde, Foster, Horner, Lerwin, Tennant, and Wheater. Messrs. Greenwood and Tennant finished a dead-heat, so the following day they met again, and after travelling fifty miles Tennant's machine punctured, leaving F. W. Greenwood, who rode 3½ h.p. Rex, winner.

Owing to the A.C.U. Sutton Bank hill-climb on Saturday, the Leeds club has abandoned the minor competition arranged for the same day.

Club News.—

West Essex A.C.

The next club competition is the 100 miles reliability run for motor cycles only for the club cup and will be held on Saturday, June 13th.

Newcastle M.C.

On the 7th prox. the run is to Barnard Castle. A non-stop trial of 114 miles will be held on Whit-Monday for the Alan Robson challenge shield and other prizes. The route will be Newcastle to Jedburgh and back *viâ* Ponteland, Belsay, Knowesgate, Otterburn, and Carter Fell.

Bolton and District M.C.C.

A reliability test has been arranged for Saturday, the 30th inst., to Gisburn, leaving Town Hall Square 1.45 p.m. Entries close on Friday, and should be sent to the hon. sec., A. Richards, Sunny View, High Street, Bolton.

Cardiff M.C.

The hill-climbing competition at Rhubina Hill attracted twelve entries from motor cyclists, and all started. The hill is about two-thirds of a mile in length, and the gradient 1 in 6 at the steepest part. The fastest time was accomplished by W. Pollard, on a 3½ h.p. Thomas Silver; he also heads the list on formula. J. N. Wyndham, who rode a 2 h.p. Central Minerva, was second on formula, his performance being particularly meritorious.

Barnsley Victoria C.C. (Motor Section).

The club hill-climb in Stainborough Park (kindly lent by Captain B. C. Wentworth) was most successful, considering how it was handicapped in every way by the abominable weather. Result on Prof. Callendar's formula:

	Rider and machine.	Time.	Fig. of merit.
1.	B. S. Ledger (2½ h.p. Jap) ...	55⅖s.	56.56
2.	E. Slater (3½ h.p. Triumph) ...	41⅖s.	59.71
3.	E. Atkinson (3 h.p. Triumph)	54⅖s.	62.48

There were fifteen entrants and eleven starters.

Welsh A.C.

On Friday, June 5th, a motor cycle hill-climbing competition will be held at Philadelphia Hill, Carmarthenshire. There will be two classes—(1) For machines of any power, and (2) not exceeding 60 by 70 mm. The winner of Class 1 will hold the Cory Yeo Challenge Cup, and the prize for Class 2 is a Motor Union silver medal. The A.C.U. formula, $\frac{W}{C \times T}$, will be used. Entry fee (5s.) should be sent to the hon. secretary, Mr. J. Shimell Andrew, Rutland Street, Swansea.

Sunderland and District M.C.C.

The hill-climbing competition at Tunstall Hope, near Sunderland, on the 16th inst., was a great success. The results on formula were:

Class I.—1, J. Kirton (3½ h.p. Minerva), figure of merit 182; 2, F. Turvey, jun. (3½ h.p. Triumph), 171; 3, W. F. Cross (3½ h.p. Minerva), 169; J. Scott (2¾ h.p. Minerva), 155; J. Jack (2½ h.p. Rex), 136; and B. Grimshaw (3½ h.p. Grimshaw), 127.

Competitors in the Perth and District M.C.C. Consumption Trial. The winner, C. Livingstone, rode a 3½ h.p. Rex, which consumed petrol at the rate of 145 miles to the gallon.

Class II.—1, E. J. Tiffin (4½ h.p. Minerva), 178; 2, W. Armstrong (5 h.p. Mowbray), 141; 3, Lambert (5 h.p. Rex), 139; W. R. Jackson (5 h.p. Rex), 125; B. Grimshaw (6 h.p. Grimshaw), 121; A. Hines (6 h.p. N.S.U.), 117; and B. Grimshaw (20 h.p. Grimshaw), 53.

Class III., open to members of the North-Eastern Automobile Association (single-cylinder machines).—1, J. Kirton (3½ h.p. Minerva), 189; 2, W. F. Cross (3½ h.p. Minerva), 162; 3, F. Turvey (3½ h.p. Triumph), 157; and J. Jack (2½ h.p. Rex), 130. W. Broadway (3½ h.p. Rex) and J. Scott (2¾ h.p. Minerva) were also among the competitors. Twin-cylinder machines: 1, E. J. Tiffin (4½ h.p. Minerva), 175; 2, W. Armstrong (5 h.p. Mowbray), 152; 3, Lambert (5 h.p. Rex), 148; Raper (6 h.p. N.S.U.), 130; W. R. Jackson (5 h.p. Rex), 126; B. Grimshaw (6 h.p. Grimshaw), 119; A. Hines (6 h.p. N.S.U.), 113; and B. Grimshaw (20 h.p. Grimshaw), 57. The record for the hill was beaten by Mr. Grimshaw, who rode a 20 h.p. bicycle fitted with a huge twin-cylinder engine, by 1⅘s.

Proposed Club for Fife, N.B.

A meeting of motor cyclists is to be held at the Bowhill Hotel, Cardenden, Fife, on Friday, the 29th, at 7.30 p.m., in order to form a motor cycle club. The proposed name is the Fife M.C.C. All riders in the district are invited to attend.

Seventeen members of the Leeds M.C.C. competed or the Kelly Cup on the 16th inst.

Mr. J. R. Kelly is seated on the motor bicycle in the centre. The course was eighty miles in length.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Sidecars and Single Gears.

[3329.]—Referring to my letter published under above heading in your last issue, I should have stated that my weight is just over eleven stones. C. G. K.

The A.C.U. Quarterly Trials.

[3330.]—Kindly allow me to draw attention to the way in which amateurs were treated over the last Quarterly Trials. By changing the day from Saturday to Wednesday the average amateur, with a business to attend to, was practically barred from entering. I, myself, and two others who had intended to ride were unable to compete for this reason alone.

EDGAR W. BRIGHTEN,
North-west London M.C.C.

Tricar Improvements.

[3331.]—Referring to the paragraph under the heading of "Occasional Comments," by "Ixion," in *The Motor Cycle* of May 13th, in which is described and illustrated a special byepass attachment and throttle which we fitted to a 9 h.p. Riley tricar, we notice in the footnote that this idea forms the subject matter of a patent by O. Imry. We do not quite see how Mr. Imry can possibly patent this device, as we have fitted it to a very great number of cars during the past few years. It was, in fact, through a customer seeing it work so satisfactorily upon a 15 h.p. Peugeot car that made him ask us to fit it to his tricar. Among other cars, we have fitted it to a 100 h.p. racing car, and it works with perfect satisfaction. The idea we have always claimed to be original, and we arrived at it only after a great deal of experimental work. CHAS. GRIMSHAW AND SONS.

[3332.]—I was much interested in the 9 h.p. Riley tricar improvements described by "Ixion" in the issue of May 13th. With reference to the carburetter improvement and to your contributor's remarks, I may point out that the suggestion is a marked improvement on the old arrangement of drilling a hole in the throttle valve to supply sufficient gas to keep the engine running for two reasons. Firstly, it is extremely difficult to get a carburetter which is efficient at high speeds to run an engine very slowly, unless it has a variable jet and choke tube. Practically all the well-known carburetters which do run an engine very slowly are provided with a number of jets which are opened progressively, or a single variable jet, which has the same effect, as in the White and Poppe. Secondly, the operation of the additional jet is not affected by the position of the extra air inlet.

With the drilled throttle, consider a case in which one is travelling fast, with the throttle fully open, and a sudden stop necessitates releasing the accelerator, causing the throttle to shut and the engine to be fed through a small hole only. One has no time to shut the extra air inlet, and the result is that the engine is stopped through weakness of mixture.

I presume that the extra nozzle is slightly higher than the Longuemare jet, so that tilting of the carburetter does not cause flooding. I should like to know whether the tap on the additional pipe is a necessity. I very much doubt if this is intended to be closed when the carburetter is used normally, but should imagine it is to be set in one position, the position to be found by experiment.

ERIC W. WALFORD.

Remarkable Occurrences!

[3333.]—We should like to inform you of some remarkable occurrences during our last Bank Holiday ride. One of us ran over a mole, which now sees perfectly. This happened just as we had completed our 255th mile on a quart of petrol each. A few miles further on there was a loud report, and the gudgeon pin of the foremost machine blew out through the cylinder wall. This delayed us but little time, for after wrapping a tyre puttee round the cylinder we went merrily on at forty-five to the Finchley gentleman's forty and yet there was no excitement.

On the return journey the bicycle which had still retained its gudgeon pin misfired violently. We took the carburetter down and found in it the errant gudgeon pin and other such particles which a carburetter usually contains. Replacing the gudgeon pin in its proper place we lightly leapt on to our machines and returned home in excellent spirits.

LI 01 AND AR 02.

Repairing Petrol Tanks.

[3334.]—In your issue of May 13th I notice in "Current Chat" a warning from "F.W." to tank repairers. Whilst admitting that every care should be taken when petrol is anywhere near, I fail to see how "F.W.'s" tank should have burst in such a manner. I myself repaired a tank by soldering, and the way I did it was this: I drained all the spirit out of the tank, cleaned the faulty joint, and then soldered in the usual manner. *I was careful to see that the filling cap was removed,* so that any gas that was made by the hot iron in contact with the cold tin could escape; also to keep far enough away from the blow-lamp. If "F.W." did these two things, I fail to see how an explosion could happen. I might say that I did not wash tank out, but just drained it and then soldered. LLEWEN SIDE.

Colonial Requirements.

[3335.]—I read with much interest Mr. Braybrooke's experiences of motor cycles on colonial roads. I see he is also against chain drive. He says he rode the first chain-driven motor cycle in Cape Colony. We all know the first chain-driven motor cycles were not much use, but has he tried a 1907 or 1908 Phelon and Moore? I have a letter here from the P. and M. Co. telling me to place my order early, as they are already booked six or eight weeks ahead, so there must be something good in chain drive. How is it that there is a cry for a twin motor cycle two-speed and free-engine and chain drive? If it behaves all right on a twin, why should it not on a single? We all know what a nuisance a belt drive is on a rainy day; it is little better than useless.

To compare the chain drive of years ago with that of to-day one might as well compare round belts of years ago to the up to date V belts. There must be at least 4½in. clearance between bottom of crankcase and ground. All motorists here know that King district roads are the worst in Cape Colony. Only recently a man riding a Dürrkopp motor bicycle struck the bottom of the crankcase on a rock, going up hill. It knocked a big dent in the crankcase and jammed the fly-wheel. Whilst two chums and I were out riding on the main road some time ago I knocked the bottom of my 1907 Triumph, and my friends both knocked theirs—the one a 1908 Triumph and the other a 3½ h.p. 1907 N.S.U. The exhaust pipe on the N.S.U. was dented until it closed. The place where we all struck was a ridge of rock across the road. Again, where a machine with 6in. clearance scores is when pushing the machine through a river drift.

We have never had a belt, rubber, or leather to last us longer than six months' riding. I have ordered a few Whittle Link Grip belts, and I hope that they will give satisfaction. I am glad Mr. Braybrooke answered my letter, because I

would like to correct a little error I made in stating that there were no motor repairers on this side of Johannesburg. What I really meant was that I believe that it is impossible to get spare parts for the machines running here, namely, 1907 and 1908 Triumphs, N.S.U.'s, Dürrkopps, and Wanderers. I can get most of them at Johannesburg. I would not write there if I could procure them nearer.

There is a first-class motor repairer, turner, and fitter at East London (Mr. J. R. Manning), who is a good workman, and one who has served his time in one of the best fitting shops in Cape Colony. CONRAD HILNER.

[3336.]—Mr. A. W. Wall, in writing on the subject of suitable machines for Australian roads [letter 3105] (I presume he has ridden all over Australia on a motor cycle), says "English makers in touch with the market readily comply with colonial requirements." I maintain that, with one exception, they do nothing of the sort, and I would like to ask Mr. Wall that if such is the case, how is it that several machines recently sent out to Melbourne are fitted with rigid forks, when good spring forks are most essential to comfort and safety on our roads?

I agree with him that it is a pity that English machines are outnumbered by the various Continental makes, but when English makers send out such an absurd twin-cylinder machine as the one I was unfortunate enough to import, with its 220 lbs. weight and 1½in. of crank case clearance, there is no longer any wonder why English machines are outnumbered.

Mr. Wall thinks that the comparison would all be in favour of the English machine in design and workmanship. Perhaps it would in England, where English makers have to produce a sound article to hold their own in the market.

If a list of the defects, which my late English machine of alleged sound design, developed during its first 500 miles, were known, it would be an object-lesson for most motor cyclists.

I have ridden English and foreign machines on English roads, also English and foreign machines in Australia, and in my opinion Continental motor cycles are years ahead in point of comfort and suitability for this end of the world.

I hope you will be able to publish this, as Australians much prefer buying an English article when they get their money's worth, to say nothing of their having to pay less duty, and it may be the means of persuading the makers at home to send out machines worth having. DOWN SOUTH.

Melbourne.

Transmission with Sidecar Attachments.

[3337.]—Upon receipt of the weekly copy of your paper, I turn as a rule first to "Occasional Comments," by "Ixion." I read that page with grateful appreciation, and I may add with appetite whetted for more. But such expressions of such an authoritative expert in the issue of April 8th as to the "essential requisites for a sidecar that is to be used for genuine touring work" appear to me almost unreasonably sweeping. They may, besides, have the effect of causing many who wish to enhance their pleasure by sharing it with a passenger to give up all idea of a sidecar as impracticable. Practical experience last year and this of a 6 h.p. twin N.S.U. fitted with N.S.U. two-speed gear and Mills-Fulford sidecar assures me that "belt drivers" who possess 4 to 6 h.p. twins need not wait for that indefinite future when "Ixion's" ideal shall actualise. They can at once go ahead in easy confidence.

I have driven the above combination on tour and on long journeys, and have by no means spared it. My passenger has on not a few occasions weighed twelve stones. I scale eleven stones. The machine has never yet failed me on a hill through want of power or efficiency of the drive. It has been twice through the Quarterly Trials. My stoppage on Amersham Hill in last trials was due to frozen carburetter. The low speed has seldom to be called upon. The two-speed gear on my mount has done its 8,200 miles, and has so far been equally reliable with the rest of the machine. This type of gear has the double advantage of being comparatively inexpensive to purchase, and can be fitted to any existing machine of the belt type as easily as an ordinary engine pulley, and without incurring the aggravating cost of alteration to the machine itself. After experiences with both chain and belt drives with passenger attachments, I unhesitatingly declare in favour of the latter.

The important thing it seems to me is to have your belt of sufficiently large cross section. Mine is $1\frac{3}{8}$ Continental, and is still in use after 7,000 miles. It would be interesting if "Ixion" would say why belts of 1¼in. or 1⅜in. should not be used with 5 or 6 h.p. Surely they would last longer and be more efficient.

The mileage I plead guilty to may appear somewhat small to constitute an adequate test, but inasmuch as I drive through all weathers, and on all conditions of roads, my experiences may not be altogether devoid of value to others.

(Rev.) E. W. HASWELL.

Police Methods.

[3338.]—On the 17th inst. I arrived at the Red Lion, Hatfield, from London, riding directly there in the company of two friends about 11.10 a.m. There were a number of motor cyclists in the hotel yard, and many continued every few moments to arrive.

I had been there with my friends and acquaintances fully thirty minutes when a police officer came on the scene and approached me, asked me to show him my license, which I immediately gave him; he asked me to show him my machine, and he then put down the number in his book. The constable then amazed me by saying he should proceed against me for riding to the common danger round the bend leading off the bridge (Welwyn side) into Hatfield at forty miles per hour, and further stated that I had only just come into the yard, and he could identify me by my white Holland jacket. He would not listen to me when I told him he was mistaken, and retorted "He knew all about that," and left the yard and resumed his position.

I appealed to my friends who saw me come in now over half an hour previous, and about twenty declared their intentions of supporting me. Thereupon I ventured to go across to the constable and tell him he had made a mistake, and asked him to return and make further enquiries of all in the yard while I stayed at his post. Very unwillingly he consented, and after fifteen minutes' examination of those present, and a score of assurances of his blunder, the intelligent officer said he would give me the benefit of the doubt, but it was a man in a white coat.

I was one among seven other white-jacketed motor cyclists in the yard. I had not passed the bridge, my halt at the Red Lion being about 200 to 400 yards on the London side of it thirty minutes before the alleged offence. The constable did not take the offending motor cyclist's number, and instead of honest admission of his mistake and discreet apology, got out by giving an innocent man the benefit of the doubt, and stating, "If it wasn't you it was someone else in a WHITE COAT."

Air Cooling.

[3339.]—In reply to "Scotia," it is very easy to say that an engine is inefficient, and it is very difficult to prove that it is not. Because motor cycle engines are normally run at speeds that propel the machine at about twenty-five or thirty miles per hour (giving, in the case of the average 3½ h.p. engine, as he says about 2 h.p.), therefore the engine is inefficient because it is not running at the 2,000 r.p.m. or so at which it gives its maximum horse-power, and he reasons that it is waste of money to use a powerful engine.

The ordinary motor cyclist does not want the mechanical or thermal efficiency cast in figures on the crankcase; he wants an engine that pulls to its last gasp, as it were, and will run slow and fast without unnecessary vibration. The key to my argument is, curiously enough, to be found in another part of the same issue, viz., in the article on page 397, entitled "Touring Machines—The Weight Question." The writer says, "Leaving out the question of speed, my answer to this, and I think most old motor cyclists will agree, is that the lightweight as a touring motor cycle lacks the comfort of the heavier machine." And why? Because, apart from the lightness of the frame and tyres, the speeds of the machines being equal, the small engine is running faster than the big one. A really well-designed single-cylinder engine gives beautifully smooth running with a 4½ or 4-1 gear at twenty-five miles per hour, above that, road and latterly engine vibration begin to be felt. I started motor cycling on a 2 h.p. machine, but the engine had to run so fast to do thirty miles an hour that I felt it was too cruel. I am waiting for the two-stroke engine. B. T. U.

Knocking in Motor Cycle Engines.

[3340.]—The problem of knocking in motor cycle engines appears to be one which has received very little attention; engines vary very much in this respect, and the pleasure to be derived from riding a motor cycle depends largely, to my mind, upon whether the engine is addicted to knocking.

By knocking I do not mean only the loud clanking which occurs in an engine when the machine is on a hill that is too much for it, but also include the peculiarly harsh sort of half-clanking explosion which some engines are never free from when travelling on an up grade. To anyone who has ever ridden over an engine free from this, and who takes any notice of the sounds proceeding from the engine at all, riding with an engine which suffers from the defect mentioned above is an agony.

The point, however, which is so puzzling to my mind is, What is it that causes it, and why is it absent in some engines? It is not loose bushes, as I have a twin engine which, through some soft metal having crept in—accidentally, in all probability—has considerable play in the connecting rod bushes, both big and little ends; yet this engine never knocks, and the explosions are always sweet and elastic. If driven up a hill that is too much for it, it makes a struggling sort of noise, but this has not the slightest resemblance to a knock. If driven up hill with the spark advanced too far, it merely goes slower than it would if the spark setting were correct. Of course, if the spark were brutally too far advanced it might knock, but I have not tried it and do not intend to. On the other hand, I have driven engines which were hushed up quite tight all over which have knocked at the slightest provocation, and the great majority of engines will do more or less. No doubt some readers will say they have an engine which does not knock, but unless they have ridden over one that is really perfect in this respect they probably do not know what it is to be free from it. I met a man recently who said he did not know what a knock was like, but on going for a ride with him every explosion was an awful clank to me. I left him in blissful ignorance.

Whether it is the design of the cylinder head, or the compression ratio, or what it is, I do not know, but probably your staff, in riding different machines, will have noticed what I allude to. A. C. HUSKINSON.

[The majority of motor cycle engines are designed with as high a compression as they will reasonably stand without preigniting at normal speeds. Doubtless, when the compression space is reduced slightly by the addition of a cake of burnt oil on the piston and combustion head, preignition will occur earlier; but it is almost certain to occur if gear ratio is too high, or speed has fallen too low.—ED.]

Unattached Riders.

[3341.]—I notice in your issue of May 13th a letter signed Harry A. Bullock, commenting upon the facilities offered by the Auto Cycle Union, and comparing them to the advantages to be secured by subscription to the Cyclists' Touring Club, and note that he considers the latter far preferable to the former.

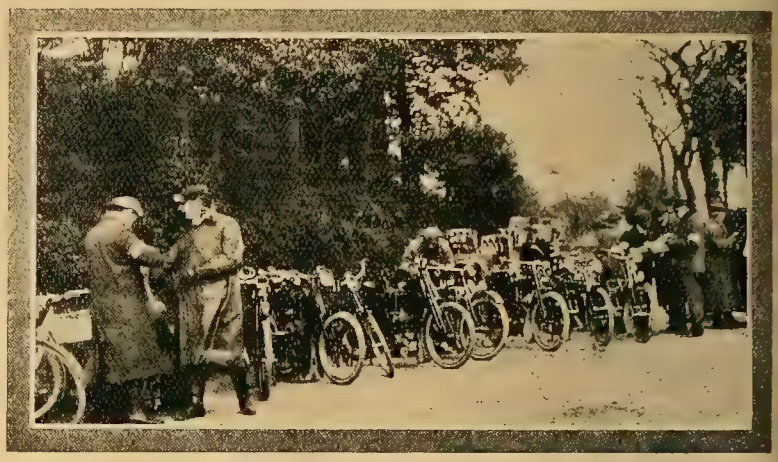
I am surprised to think that a reader of your paper should be so unenlightened as to imagine that the C.T.C. can offer for its subscription of 5s. anything like the privileges that the A.C.U. can give for its half-guinea subscription.

One has only to consider that the A.C.U. can give full privileges of associate membership of the Royal Automobile Club, which includes the use of club rooms at 112, Piccadilly, a weekly copy of the *Royal Automobile Club Journal*, legal advice, special touring facilities, in conjunction with access to the best organised touring bureau of the country, and many other valuable advantages of direct benefit to motor cyclists, and then to consider that all the C.T.C. can really offer, in addition to touring facilities, is the *Monthly Gazette* and a reduction on hotel bills.

If Mr. Bullock will only write to the secretary of the A.C.U., at 18, Down Street, W., I feel sure that he will soon alter his opinions concerning the Auto Cycle Union.

H. GILLARD COVE.

[3342.]—In a recent issue dealing with this question you mention the fact that "for every local motorist who associates with the R.A.C. direct the local club, if affiliated, receives a portion of the subscription paid to the R.A.C. by the local associate." At the time I thought it would be much simpler if the local clubs enrolled associate members at a five shillings subscription and then affiliated them to the A.C.U. This, I see, is now being done by at least two clubs—the Bradford M.C.C. and the S.E. Auto Cycle Association. The latter association, the hon. sec. of which is Mr. H. B. Renner, 31, Kidbrook Park Road, Blackheath, S.E., being near my own district, I have now joined.



Great Yarmouth and District M.C.C. members assembling at Haddiscoe for the penalty run over a distance of seventy-six miles.

With regard to the privileges the A.C.U. should grant to its own associate members, I must say that on this I do not agree with you. I think that it should grant all the privileges that it grants to the members of affiliated clubs, a list of which were given in your issue of February 12th. Could you not repeat this list to show motor cyclists the advantages they obtain by joining a club which affiliates its members to the A.C.U.? J. H. S.

Air Cooling.

[3343.]—It would be interesting to hear if any motor cycle engine has been designed or built on the lines of the air-cooled engines on certain American cars, with a cylinder covering and "air circulation" by means of an enclosed fan driven off the crankshaft.

These American cars can hardly be looked upon as freaks, and one with a powerful four-cylinder engine is about to be raced at Brooklands. There appears good scope for inventors for an engine on the lines mentioned. D 1617.

[Several motor cycle engines have been designed on these lines—one with a spiral air chamber.—ED.]

SUMMARY OF CORRESPONDENCE.

Mills and Fulford, Coventry, write: "We notice in last week's issue of *The Motor Cycle*, page 396, 'Hints and Tips for Motor Cyclists,' by 'Road Rider,' that in tip No. 214 it is stated under the heading of 'Sidecars' that the rigid pattern alone is entirely free from side-slip. We would like to point out that the castor wheel model is equally as free from side-slip. This will be perfectly clear when we point out that the steering castor head is fixed in a perpendicular position, so that, no matter at what angle the wheel may be, the level of the car remains the same. Although a motor bicycle fitted with this pattern of sidecar will under severe conditions slip slightly, it is impossible for any serious complications to ensue. With our latest pattern of clips, our sidecar can be attached and detached in a couple of minutes."

Mr. B. H. Davies requests us to state that from this date his address will be 11, St. George's Avenue, Northampton.

EXPERIENCES WANTED.

"J. H. S.," Glasgow, would like readers' experiences of the 4½ h.p. F.N., particularly with regard to economy in petrol and oil, vibration, upkeep, and starting.

"GOODRICH"!

Trade Mark.
QUALITY.

THAT'S THE TYRE

THE ORIGINAL ALL RUBBER NON-SKID.

MANUFACTURED BY THE
B.F.Goodrich Co.,
7, SNOW HILL,
LONDON, E.C.

Supplied by all Dealers Everywhere.

FOR THE FIRST TIME

since we introduced this tyre on to the market

WE ARE NOW ABLE TO DELIVER FROM STOCK.

Customers who have been disappointed in delivery will please accept this intimation as an apology for previous delays, as

WE WERE UNABLE TO FORECAST SO IMMEDIATE A SUCCESS AND SO LARGE A DEMAND.

Trade Mark.
QUALITY.

MISCELLANEOUS ADVERTISEMENTS.

IMPORTANT NOTICE.

Owing to the Holidays, Advertisements for our issue of the 10th June must reach Coventry not later than FIRST POST on Thursday, 4th June, to ensure insertion.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post

All letters relating to advertisements must state distinctly under what heading they appeared, and date of issue.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Genuine Twin Rex, £22, guaranteed, spring forks low built, goes like a flash; £16 given for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex, in part payment.—Address below.

HALIFAX.—1908 Rex Featherweight, Duplex frame, magneto, splendid climber, new; 25 guineas; exchanges.

HALIFAX. — 1908 3½ h.p. Magneto Tourist Rex, new; why pay fancy prices? 35 guineas; exchanges.

HALIFAX.—1908 Triumph, magneto, all the latest improvements; delivery now; £48; exchanges.

HALIFAX.—1907 4 h.p. Roc, two speeds, and Roc clutch, excellent order and condition; £35.

HALIFAX.—3½ h.p. Excelsior, spray, trembler coil, Clincher tyres, good condition, suit sidecar; £16 10s.

HALIFAX.—Twin-cylinder Hadley, 4½ h.p., Calmon and Clinchers, 26 wheels, special finish; £17 10s.

HALIFAX Motor Exchange. — Cash, exchange, or extended payments. High-grade machines purchased for spot cash — 16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

A GOOD DEAL

depends on buying your machine through

A GOOD DEALER

This is the sort of hand **we** deal—

We stock always all the models of the above famous makes, and have always a fine assortment of second-hand machines. **Do not get left without a mount for WHITSUNTIDE.** Write us to-day, and if you have a second-hand machine which you wish to exchange, give us details. Save yourself the inevitable worry of selling it privately.

THE WARWICK (car-style) MOTOR CYCLE is a recent introduction of our own. See our advertisement elsewhere in this issue.

The following SECOND-HAND MACHINES are in perfect running order, ready for the road, and have the **Premier Certificate** of **Fitness**:

REX, 1908, 3½ h.p. de Luxe, 2-speed gear, magneto, accessories	£40 0
ROC, 1908 Military Model, clutch and 2-speed, spring forks	40 0
ROC, 5 h.p., magneto, Roc clutch	32 0
TRIUMPH, 1907, 3½ h.p., magneto	35 0
N.S.U. Twin, 6 h.p., magneto, two-speed gear, splendid machine	35 0
VINDEC SPECIAL, 1907, 5 h.p., Truffault, and 2-speed	35 0
VINDEC SPECIAL, 3½ h.p., magneto, Truffault forks, adjustable pulley	30 0
VINDEC SPECIAL, 1906, 5 h.p., Truffault	27 0
REX DE LUXE, Roc clutch and gear, perfect order	26 0
ZENITH BICAR, 4 h.p., Whittle belt, free engine	22 0
TWIN REX, 5 h.p., cantilever seat, grand condition	19 10
N.S.U., 3½ h.p., magneto, fine condition	19 0
QUADRANT, 3½ h.p., spring forks, perfect	19 0
EXCELSIOR, 2¾ h.p.	8 0
F.N., 2¾ h.p., magneto	13 0
QUADRANT, 3 h.p.	9 10
MINERVA, 2 h.p., spring forks, B100 saddle, tyres like new	9 10
WHITLEY, 3½ h.p.	10 0
MINERVA, 1½ h.p., spring fork, good condition	5 10
REX Tricar, faultless, running splendidly	23 0
STEVENS TRICAR, two speeds, free engine, wheel steering	33 0

Others constantly arriving. Complete list free on application.

PREMIER ACCUMULATORS.

Specially heavy plates—do not disintegrate.
10 amp. .. .. 9/6 } List on
20 ,, ... 12/6 } application.
Pamphlet, "The Evolution of the Motor Cycle" sent free on application, together with "Motor Cycles of 1908," "On the Choice of a Motor Cycle," etc.

SEE OUR OTHER ADVERTISEMENTS IN THIS ISSUE, TYRE BARGAINS, etc.

PREMIER MOTOR AGENCY,

Aston Road, Birmingham.

Telephone: 4310. Telegrams: "Primus," B'ham.

MOTOR BICYCLES FOR SAL

HALIFAX. — Lightweights, in going ord 25s. deposit and six monthly payme of 22s. 6d. secures 2 h.p. Quadrant, 1¾ h Minerva, 2 h.p. Minerva, 2 h.p. Kelecom h.p. Quadrant, 2 h.p. Humber, 2 h.p. U versal, 2 h.p. F.N., and 2 h.p. Princeps.

HALIFAX.—4 h.p. Antoine, special fran Palmer tyres, really good mount; 10s.

HALIFAX.—Twin-cylinder Onaway, V gine, spray, specially low, suit sh rider; £22 10s.; spring forks.

HALIFAX. — 4 h.p. Alcyon, fine 26 by tyres, twin, spring forks, N.S.U., t speed gear, light and low; £23 10s.

HALIFAX.—3 h.p. Singer, late model, h drive, high tension magneto, sma £21.

HALIFAX.—Twin-cylinder magneto Vin Special, condition exceptional; che £35; spring forks.

HALIFAX.—2¾ h.p. Phelon and Moore, t speeds, 26 wheels, carry heavyweig £27 10s.; any trial.

HALIFAX.—3½ h.p. four-cylinder F. spring forks, high tension magne £25.

HALIFAX. — 1907 4 h.p. Jap, Chater-L spring forks, torpedo tank, 24 whee £24 10s.

HALIFAX.—Brand new 2¾ h.p. Bat, Peug engine, 26 wheels, unridden, and p fect; £21.

HALIFAX.—3½ h.p. Simms, vertical engi magneto ignition, easy starter, liable; £17 10s.

HALIFAX.—2¾ h.p. Clyde, vertical engi magneto ignition, splendid conditi £16 10s.

HALIFAX.—3½ h.p. F.N., special mach long bars, very low, first-class ord £17 10s.

HALIFAX.—4 h.p. Antoine, 26 wheels, frame, trembler, girder forks, very mount; £16 10s.

HALIFAX.—Fine 3½ h.p. Rex, long bars, saddle, good climber; £11 10s., barg

HALIFAX.—2½ h.p. Jap, lightweight, spr tyres good, very low and smart, g climber; £12 10s.

HALIFAX.—3 h.p. Humber, spray, l bars, low saddle, well cared for, g tyres; £10.

HALIFAX.—3½ h.p. Minerva, spray, gir forks, 26 by 2¼ Clincher A Won; begg at £16 10s.

HALIFAX.—5½ h.p. twin Rex, black fin enamel and tyres equal new, spr forks; £23.

HALIFAX.—3½ h.p. 1906 Rex, spring fo low frame, foot brake, aluminium ish; £15.

HALIFAX.—3½ h.p. Magneto Rex, spr forks, Rex foot brake; cannot repe £18.

HALIFAX.—3½ h.p. Rex, spray carburet 22in. frame, very powerful machi £11 10s.

HALIFAX.—2 h.p. Beeston Humber, drive, spring forks, good climber, l and low; £8 17s. 6d.

HALIFAX.—2½ h.p. Calvert, vertical eng spray, 26 wheels, tyres good; barg £9 9s.

HALIFAX.—3 h.p. Lloyds, very fine, mers, spray carburetter, footboa trembler coil; £9 10s.

HALIFAX.—Very fine 2¾ h.p. De Dion, tical engine, spray, new tyre and b £11 10s.

HALIFAX.—45s. deposit and six mon payments of 29s. 6d. secures 2¾ h.p. celsior, 3 h.p. Humber, 2¾ h.p. Minerva h.p. De Dion, 2¾ h.p. Hobart, 3 h.p. Llo 2¾ h.p. Minerva, 3½ h.p. Rex, 2½ h.p. Aur 2¾ h.p. Kerry, 3 h.p. M.M.C.; all guaran running order.

HALIFAX Motor Exchange. — Cash, change, or extended payments. H grade machines purchased for spot ca 16, Westgate, Halifax. Telephone, 766. T grams, Perfection.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—All the undermentioned motor cycles are in guaranteed good running, and can be seen on the road at the address.

MAUDE'S. — Zenith Bicar, two speeds, handle starting, newly enamelled and done up by the makers. Now, ye godfathers, how's this at £30.

MAUDE'S.—Zenith Bicar, 4 h.p., free engine, new rear tyre; £21.

MAUDE'S.—Zenette, sprung frame, girder forks, free engine, 3 h.p.; £24.

MAUDE'S.—Rex twin, 1907 model, new 7in. Watawata, splendid condition; £22.

MAUDE'S.—6 h.p. N.S.U., 24in. wheels, accumulator ignition, perfect; £24.

MAUDE'S.—Rex, 1907 model, 3½ h.p., just been overhauled; £18.

MAUDE'S.—Rex, 3½ h.p., 22in. frame, two-speed gear; £13.

MAUDE'S.—Ariel, 3 h.p., B. and B. carburetter, vertical, 26in. wheels, very good condition; £15.

MAUDE'S. — Minerva, 3½ h.p., vertical, M.O.V., spray carburetter; £17.

MAUDE'S.—Minerva, 3½ h.p., 26in. wheels, low built, winner of two hill-climbs, £18.

MAUDE'S.—Minerva, 2¾ h.p., vertical, new tyres, saddle, silencer, and pedals, thoroughly overhauled and re-enamelled; £12.

MAUDE'S.—Clarendon, 3 h.p., vertical engine, spray, very good tyres; £11.

MAUDE'S.—F.N., 2¾ h.p., vertical, spray, 26in. wheels, Palmer tyres; £11.

MAUDE'S.—Rip, 3½ h.p., White and Poppe engine, spring forks, sprung frame, rand new and perfect; £27.

MAUDE'S. — 2¾ h.p. Minerva, 1906 model. 26in. wheels; £15.

MAUDE'S.—Rex, 50-guinea model, non-skid to rear, Palmer front; £10 10s.

MAUDE'S.—Bat, 3½ h.p., Bat engine, Longuemare spray, with sidecar; £28, without £23.

MAUDE'S.—Lloyds, 2 h.p., vertical engine, footrests, spray, 26in. wheels; a beauty, 12.

MAUDE'S.—Minerva, 3½ h.p., magneto, spring forks, low-built, 26in. wheels; 21.

MAUDE'S.—Rex, 3⅜ h.p., 1906 model, good condition, standard; £15 15s.

MAUDE'S.—Rex, twin, 6 h.p., cantilever seat, 50 guinea model; £22.

MAUDE'S.—Zedel, 2 h.p., vertical engine, low built, 26in. wheels, as new; £11; to be recommended as a lightweight.

MAUDE'S.—Jap, Phœnix built, good tyres; £9.

MAUDE'S.—Rex, 26in. wheels, low built, spray carburetter, footboards; £14 14s.

MAUDE'S.—Noble, 26in. wheels, low built, spray carburetter; £12.

MAUDE'S.—Bayliss, 3½ h.p., very good tyres; £11.

MAUDE'S.—Fafnir, 3 h.p., vertical, lovely condition, 26in. wheels, and perfect; 14, a bargain.

MAUDE'S.—Humber, 2 h.p., trembler coil, chain drive, good running order; £9.

MAUDE'S.—Singer, 2 h.p., magneto, Singer carburetter; £8.

MAUDE'S.—45s. down and twenty-four weekly payments of 7s. 6d. secures 3½ h.p. Excelsior, 3 h.p. Rex, 2 h.p. Humber, 2¾ h.p. Humber, 2½ h.p. Jap, or 2 h.p. magneto singer. Delivery upon first payment.

MAUDE'S Motor Mart, Powell Street, Halifax (behind the Victoria Hall), offer without doubt the very best bargains in motor cycles, all of which are guaranteed in good running order before despatch. Write us and let us have your requirements, and we will quote you best terms for exchange or cash. Nat. tel., 433.

A Startling Offer.

If you wish for a motor cycle, and prefer trying a second-hand one first, we are prepared to allow THE FULL PRICE PAID for any of these at the side within TWO MONTHS, if still in reasonable condition, in part payment for a new 1908 model.

WHAT COULD BE FAIRER?

MINERVAS.

Let us quote you for new 1908 models. We can give the finest possible terms for these machines, cash or exchange. Any other make quoted upon request.

3½ h.p. VINDEC	£48	10	0
5 h.p. VINDEC	53	0	0
5 h.p. TOURIST	52	0	0
2¾ h.p. MINERVA	29	0	0
3½ h.p. MINERVA	32	0	0
4½ h.p. MINERVA	39	0	0
7-8 h.p. MINERVA	45	0	0
1¾ h.p. F.N.	35	0	0
4½ h.p. F.N.	50	0	0
3½ h.p. TRIUMPH	48	0	0
3½ h.p. SILVER	39	0	0
3½ h.p. BROWN	37	0	0

Any other makes gladly quoted upon request.

TRICARS.

REX Triette, 6 h.p., twin	£25	0	0
HUMBER Tricar, chain drive	15	0	0
HUMBER, two speeds, water-cooled, chain-driven, handle-starting	28	0	0

FORECARS, etc.

Nice Forecar, with front brakes	£5	0	0
BAT Sidecar, good condition	4	10	0

ACCUMULATORS.

A genuine and cheap accumulator at last! Guaranteed twelve months. Genuine "RIP" accumulators. Note particularly the prices:

REX size, 3¾ x 2½ x 5½in.	£0	12	0
ARIEL size, 4 x 1⅞ x 6¼in	0	12	6
MINERVA size, 4¼ x 2⅛ x 6¼in.	0	13	6

Try one on approval. Cash returned if not perfectly satisfactory.

ACCESSORIES.

Osborne Free Engine	£1	7	6
Salsbury Car Headlights, pair	5	0	0
¾in. Leather Belting, per foot	0	0	6
Lightweight Engine, 1¾ h.p. Werner	2	0	0
Twin Trembler Coil	0	12	6
Charging Plant (large)	4	0	0
Steering Wheel, dished	0	7	6
Plated Seat-pillars	0	1	0
Trailer, with wicker box, new tyres, suit tradesman	2	0	0
Variable Pulley, new, fit Rex	0	12	6
Footrests, fit '06 Rex	0	5	0
Footrests, fit N.S.U.	0	5	0
Frame, with wheels	0	15	0
Vim Stands	0	6	0
Densmore Typewriter	5	0	0
Belt Rims, each	0	3	0
Two-speed Gear, fit Peugeot	4	10	0
Charging Battery	1	5	0
Peugeot Engine, 3½ h.p. (new)	6	0	0
Lathe, 4in. centres, screw-cutting	10	0	0
Front Spindles, with cones	0	1	0
B. and B. Carburetter	1	0	0
Gas Engine and Dynamo	4	10	0
Broo Saddles, and your old one	0	8	6

TUBES.

FULLY GUARANTEED.

26 x 2in.	6/-	28 x 2in.	7/-
26 x 2¼in.	7/-	28 x 2¼in.	7/6.
26 x 2½in.	8/-	28 x 2½in.	8/-

Immediate Delivery. Approval.

COVERS.

26 x 2in.	16/-	28 x 2in.	17/-
26 x 2¼in.	17/6.	28 x 2¼in.	18/-
26 x 2½in.	21/6.	28 x 2½in.	22/-

"ALBANY" BELTING.

⅛in. 7d., ¼in. 8d., ⅜in. 9d., 1in. 10d. per foot.

GOODRICH ALL-RUBBER NON-SKID.

26 x 2¼in. cover, £2.

9/- allowed on your old cover in part payment.

Good high tension magneto motors wanted for spot cash.

MAUDE'S MOTOR MART,

Powell Street, HALIFAX.

National Telephone 433.

MOTOR BICYCLES FOR SALE.

3½ h.p. Chater-Lea, Longuemare, Nilmelior trembler, new Prested, heavy tyres, Continental back with Bates band, Watawata, Price's stands, long bars; £16 16s.; good machine; too powerful for young rider.—"The Rowans," 8, St. John's Road, Brixton.

FOR Sale, Motosacoche, quite new, not ridden yet, Druid spring forks, Palmer tyres, N.A.B. seat-pillar; cost £36, including £1 spares; garaged at Earl's Court Garage, Earl's Court Station; take £27, or exchange for 4 h.p. Roc, if in faultless condition. — Write, Motorist, Flat F, 22, Redcliffe Square, S.W.

6 h.p. Bat, Jap spring frame and forks, special brakes, Jap lubricator, Autoclipse lamp, two new belts, studded tyres, perfect condition, full kit tools and spares, not done 2,000 miles; owner bought car; £30. —Humphrys, 6, Comberton Terrace Kidderminster.

3½ h.p. Quadrant, 1906 pattern, but very little used, and as new, enamel and plating perfect, spring forks, tyres unscratched, very fast, and splendid hill-climber, with all spares, stand, etc.; price £20, no offers.—G.G., 34, Cambridge Place, Paddington, W.

FULL of all the good qualities necessary to make a perfect motor cycle is the four-cylinder F.N., not a machine to go 90 miles an hour, and —— but goes comfortably all the time, whether it be 4 or 40.—For particulars, trials, etc., write F. Heath, Salford Priors, Evesham.

MINERVA and Rex. — We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

KERRY, 2¾ h.p., Model de Luxe, in new condition and order, Continental tyres, long handle-bars, low saddle, new P. and R. accumulator, Lycett belt and toolbag, complete with all high-class accessories, very fast and reliable; a bargain, £13 10s.; after 6 p.m.—30, Willow Road, Hampstead, N.W.

1907 5 h.p. Twin Magneto Rex, cantilever seat, Albion adjustable pulley, Wright's spring footrests, Rich's tubes, Michelin non-skid back, Bradbury stand, Main-Hilton carrier, many spares, condition perfect, ridden 500 miles; lowest £26 10s.—E. Buttle, Woldingham. Garaged at Wauchope's.

3 h.p. Fafnir, Chater-Lea, low, excellent condition, just overhauled, fast, reliable, good climber, new back cover and tube, re-treaded front, two-way switch, trembler coil, hooter, stand, Brooks B100 saddle, tool-bag, numbers, all spares, etc.; removal sole cause of selling; price £12 10s.—Dr. Freeman, Earlsfield, S.W.

1908 Triumph, in perfect condition, only two months in use, has not given a moment's trouble hitherto, and fairly laughs at hills, handle-bar control, adjustable pulley, magneto ignition; cost, with accessories and touring kit, £54, price for immediate cash, £39.—Box No. 9,927, *The Motor Cycle* Offices, Coventry.

3½ h.p. Fafnir, two speeds, Longuemare, fitted Gillett-Leechman, Chater-Lea throughout, No. 6 frame, tricar hub, spring forks, Brooks B100, 2½in. Palmer cords, unpunctured, two accumulators, brass torpedo tank, thumbslides, footboards, chain drive, low, faultless; £25.—Thompson, 112, Hatfield Road, St. Albans.

ANGLO-SAXON Bargains. — 1908 Triumph, £43, in stock; 26 by 2 best butt-ended tubes, 7s. 11d.; 26 by 2¼ ditto, 8s. 11d.; Rich detachable, 12s. 6d.; rubber goggles, with spare glasses, 1s. 9½d.; extra heavy motor covers, 14s. 6d.; Peter-Union studded cover, 26 by 2, 17s. 6d.; Tyre Doctor, the scientific compound for repairing cuts, sample post free 6d.—31, Newgate Street, London.

SPECIAL Clearance Lines.—1¾ h.p. Minerva, £5 14s.; 2¾ h.p. Ormonde, £6 15s.; 2 h.p. Peugeot, £7 10s.; 2¾ h.p. Jap-Enfield motor cycle, £6 10s; 2 h.p. Quadrant, £6 10s.; 2¼ h.p. Humber, £6 10s.; 3 h.p. Aster, £7 10s.; 4 h.p. twin Hamilton, £10 10s.; 1¾ h.p. Werner, £6 10s.; 2 h.p. Raleigh, £7 10s.; 2¾ h.p. De Dion, £9; 3½ h.p. M.M.C., Chater-Lea fittings, £10 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

MOTOR BICYCLES FOR SALE.

TRIUMPH Motor Cycles.—Agents, Bright and Hayles, 73, Church Street, Camberwell.

2¾ h.p. Brown Bike good order, accessories; £12.—91, Old Dover Road, Blackheath.

3½ h.p. Peugeot, 80 by 98, torpedo tank, Chater low frame; £21.—Wauchope's, 9, Shoe Lane, E.C.

2 h.p. Werner, light, low, engine wants rebushing; trial; £6 10s. — 24, Radnor Road, Harrow.

1¾ h.p. Lightweight Wolfe, condition absolutely as new; price £15.—Wauchope's, 9, Shoe Lane, E.C.

MOTOSACOCHE, perfect condition, new 1908; cheap.—Apply, A.M.L., 14, Islington Row, Edgbaston.

2¾ h.p. F.N., vertical engine, worth immediate attention; £14 10s.—Wauchope's, 9, Shoe Lane, E.C.

BAT, 2¾ h.p. De Dion engine and carburetter, splendid condition; £16.—M., Highstone Garage, Leytonstone.

ROC, 4 h.p., 1907 model, low frame, military model, clutch, hand starting; £30. —9,969, *The Motor Cycle* Offices, Coventry.

2¾ h.p. Minerva, vertical engine, M.O.V., a sterling machine; £14 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

MOTO-REVE, 1908, new; cost over £40; with all accessories; £33; approval, deposit. —No. 9,971, *The Motor Cycle* Offices, Coventry.

3½ h.p. Ariel, Minerva engine, girder forks, twin accumulators, good as new; lowest £18 10s.—Heron, 22, Hazeldine Road, Chiswick.

3½ h.p. Minerva, fitted with Mabon free engine clutch, in excellent condition; price £17 10s.—Wauchope's, 9, Shoe Lane, E.C.

2½ h.p., excellent condition, very low and light; great bargain, £16; also quantity sundries; seen any time.—161, Essex Road, N.

1¼ h.p. N.S.U., 1908 model, lightweight, magneto; £17 10s.; spring front forks, condition as new.—Wauchope's, 9, Shoe Lane, E.C.

7 h.p. Twin Buchet, handle-bar control, B. and B. carburetter, very fast; low frame; price £23. — 1, Lancaster Street, Brighton.

6 h.p. Jap, large flywheels, in Chater-Lea low frame (No. 6); £25 very lowest; shows no sign of wear.—Wauchope's, 9, Shoe Lane, E.C.

3 h.p. Motor Cycle, De Dion engine, good condition, Dunlop and Clincher tyres; sacrifice £14.—T. Judd, 123, Holloway Road, London, N.

£12 10s.—3½ h.p. Carlton-Chater-Lea, Clinchers, 26in.; exchange lower power and cash.—23, Anstey Road, Cambrian Road, Coldharbour Lane.

3½ h.p. Excelsior, condition almost as new, 26in. wheels, smart and fast machine; £10 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

3¾ h.p. Durkopp, magneto ball bearing engine, footboards, spring forks, thorough good condition; £16. — 19, Cheriton Square, Balham.

2¾ h.p. Alldays and Onions Motor Cycle, with all accessories and spare parts, practically new; £20, or near offer.—Cross, Oakdene, Kingsway, Woking.

3½ h.p. Chater-Lea (engine and frame), perfect order; ride 20 miles to genuine buyer; £12; seen by appointment.—4, Kennington Park Gardens, London, S.E.

5½ h.p. Magneto G.B., very low frame, fitted with a Zedel twin-cylinder engine, also a sidecar to go with it; price £26 10s.—Wauchope's, 9, Shoe Lane, E.C.

4½ h.p. Twin Minerva, in good running order, Continental extra Stark tyres condition as new; £30, or offer; trial willingly.—Lloyd, Lownd's Avenue, Bromley, Kent.

2½ h.p. Triumph, Clincher A Won tyres, two accumulators, Longuemare carburetter, Dermatine belt, perfect condition; accept £13 10s.—73, Church Street, Camberwell.

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Lightweights, in going order, to clear

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GNAVITER Rubber and Canvas V Belting (Transverse grooves). Embodies all good points of other rubber belts without their drawbacks. "A distinct improvement."

NOTE.—The prices are between 33⅓ and 50% less than other makes. Good rubber belts need not be dear. Send cash for sample length on approval. ⅜" 9d., ½" 1/-, ⅝" 1/4, 1" 1/8 per foot. Any length cut. Fasteners 6d. each.

Cash, Credit, or Exchange.

1908	3½ h.p. **TRIUMPH** (new) ..	£48	0
1908	2½ h.p. **REX** (new)	26	5
1908	3½ h.p. **REX** Tourist (new) ..	36	15
1908	3½ h.p. **REX DE LUXE** (new)	47	5
1908	5 h.p. **REX** Tourist (new) ..	42	0
1908	5 h.p. **REX DE LUXE** (new)	52	10
1908	3½ h.p. **N.S.U.**, magneto (new)	42	0
1908	5½ h.p. **N.S.U.**, magneto (new)	52	0
1908	**N.S.U.** Lightweight (new) ..	34	10
New	2¾ h.p. **BAT**, Peugeot	£1	0
4	h.p. **ROC**, two speeds (1907)..	35	0
5	h.p. **VINDEC** Special	35	0
3	h.p. **SINGER**, magneto, V belt	21	0
3½	h.p. four-cylinder **F.N.**	25	0
3½	h.p. **QUADRANT**, 1906	18	10
5½	h.p. Twin **REX**, black finish ..	23	0
5½	h.p. **REX DE LUXE**, magneto	27	10
2¾	h.p. **PHELON AND MOORE**	27	10
6	h.p. magneto Twin **REX**	25	0
Twin	**REX**, black finish, as new ..	23	0
6	h.p. Twin **REX**, non-skids	22	10
4	h.p. **ANTOINE**, 26 × 2¼ Clinchers	16	10
3	h.p. **BAT**, like new, two speeds	20	0
3½	h.p. **SIMMS**, mag., 2¼ Palmers	17	10
6	h.p. 1907 Twin **REX**, nearly new	23	0
6	h.p. 1906 Twin **REX**, nearly new	22	0
4-5	h.p. Twin **ALCYON**	23	10
4	h.p. Twin **WERNER**, fine machine	19	19
4½	h.p. Twin **HADLEY**, long & low	17	10
5½	h.p. Twin **REX**, 2¼ Peter Unions	22	0
3½	h.p. **REX**, 1906, 2¼ tyres, extra good	16	5
3½	h.p. 1906 **REX**, spring forks	15	10
3½	h.p. **MINERVA**, spring forks	17	10
3¼	h.p. **REX**, spray, fine climber	11	10
3½	h.p. **MINERVA**, 26 × 2¼ Clinchers	16	10
3	h.p. **GIVAUDAN**, nearly new	16	0
3	h.p. **ROVER**, 26 × 2¼ Palmers	13	10
3	h.p. **LLOYD'S**, 26 × 2¼ Palmers	13	10
4	h.p. **ANTOINE**, spring forks ..	16	0
3	h.p. **BRADBURY**, vertical, spray	14	0
3½	h.p. **F.N.**, special machine	17	10
4	h.p. **ANTOINE**, high tension, mag.	19	19
4	h.p. **ANTOINE**, Eadie frame ..	16	10
3½	h.p. **BROWN**, footboards	15	0
4	h.p. **JAP**, 1907, Chater Lea	24	0
2¼	h.p. **CLEMENT**, very low	11	0
1¾	h.p. **SIMMS**	7	0
1¾	h.p. **SIMMS**, magneto	7	0
1¾	h.p. **MINERVA**.....	5	15

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9	h.p. **FAFNIR**, tonneau	£57	10
8	h.p. **ARGYLL**, two seater	57	10
10-12	h.p. **BRUSH**, tonneau	70	0

Genuine Calmon Covers with non-slipping tread.—26 x 2, **14/3**; 28 x 2, **15/9**; 28 x 2¼, **16/9**; 28 x 2½, **20/6.**

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2¾ h.p. Griffon, Dunlops, Longuemare, excellent condition; £10, genuine bargain, or exchange for higher power and cash.—69, Shaftesbury Avenue, Bristol.

ANGLO-SAXON Bargains.—Wolf lightweight motor cycles, £17 17s., in stock; complete attachment, fit any push cycle, £12 10s., in stock.—31, Newgate Street, London.

URMSTON.—3½ h.p. standard Minerva, new free engine clutch, spring forks; will give guarantee of reliability; lamp, stand etc.; £21. — Williams, 38, Cavendish Road Urmston.

3½ h.p. Rex Longuemare carburetter, just been thoroughly overhauled, in splendid condition, very powerful and fast, tyres as new; £12 10s.—Motorist, 12, Market Street Kettering.

3½ h.p. N.S.U., 24in. by 2½in. sound tyres Bates band back, thoroughly good £18, or exchange 4 h.p. two-speed Roc, four cylinder F.N., and cash.—44, Dornton Road Balham, S.W.

3¼ h.p. Latest Low Clarendon, brand new two weeks ago, guaranteed perfect and faultless; trial and approval allowed accept 19 guineas, cost £38.—22, Catherine Street, Coventry.

MOTOR Cycle, 2¾ h.p., Ariel, Minerva engine, in splendid condition, very fast cheap, 50 miles trial given; also a F.R.S. motor cycle lamp, new, 17s. 6d. — Osborne Bros., Stechford.

3½ h.p. Minerva, powerful, low, splendid condition, Clinchers, sound, Smith band back, Mabon free engine clutch, new Stratex belt, spares, and accessories; £18.—Wade, Hanworth, Norfolk.

EDINBURGH.—Scottish readers, be sure not to miss our grand show of motor cycles Stands 126 and 127, Industrial Hall, Scottish National Exhibition; 16 different makes shown by Alexander's Motor Exchange, 110 Lothian Road, Edinburgh.

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3½ h.p. London Engine, 85 by 85, Palmer Continental, spring forks, stand-carrier, two accumulators; expert examination absolute bargain, £12, or nearest offer.—3 Belhaven Street, Bow, London, E.

3¼ h.p. Bat, genuine De Dion engine, spring frame, fitted with a Fit-all two-speed gear, this is a perfect touring machine, and will stop at nothing in hills; price £22 10s.—Wauchope's, 9, Shoe Lane, London, E.C.

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TRIUMPH, 1908, very good condition, Palmer cord and Rich behind, Clincher front, Whittle and two rubber belts, lamp spares, footboards and pedals; good reason for selling; £41.—Apply, G. Wingate, 69, Jesus Lane, Cambridge.

BARGAIN.—Triumph, 3 h.p., machine in perfect order throughout, not done 1,000 miles, complete with all spares and Triumph gas lamp, only wants seeing; £24 10s.; will ride fifty miles to meet buyer.—Motorist, 5 Highgate Hill, N.

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2 h.p. Minerva, perfect, as new; £10. — 36, Stroud Green Road, London, N.

3½ h.p., on Chater No. 6, splendid condition; £15 15s.—62, Station Road, Forest Gate.

2¾ h.p. F.N. Motor Cycle, good condition; what offers?—443, Green Lanes, Harringay.

ROVER, 3½ h.p., guaranteed perfect, all spares; £12.—Harrison, 36, John Street, Londonderry.

3½ h.p. Rex, spray, good condition, 26in. wheels.—Rey, 5, Heath Street, Hampstead.

3¼ h.p. Clarendon, fast, trembler, splendid condition; £15.—Harvey, 1, Trevelyan Road, Tooting.

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HAMPSTEAD.—3½ h.p. late 1907 Minerva, condition like new; £24, with all spares.

HAMPSTEAD.—3½ h.p. N.S.U., late model, magneto, condition as new; great bargain, £20.

HAMPSTEAD.—3½ h.p. twin 1907 Griffon, magneto, and spring forks, new tyres, guaranteed; £28.

HAMPSTEAD.—3½ h.p. spring frame Bat, replated, good tyres, splendid condition all spares; £17.

HAMPSTEAD.—1907 brand new 1¾ h.p. lightweight Griffon; £27; slightly shopsoiled only.

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HAMPSTEAD for Bargains.—Sole agents for Griffons, Minervas, F.N.'s, Triumphs, etc.; liberal allowances or exchanges; catalogues on application.—Rey, 5, Heath Street Motor Works, Hampstead. Tel. 2678, P.O.

2½ h.p. Minerva, 20in. frame, 26in. wheels, torpedo tank, £20, or near offer.—29, Clinton Avenue, Blackpool.

5 h.p. Twin Sarolea, Chater-Lea, just new; accept £35, or nearest reasonable.—F., 11, Eglantine Road, Wandsworth.

3½ h.p. Rex, excellent condition, very powerful and fast; £13.—Fry, 84, Moscow Road, Bayswater, London.

GENUINE 3½ h.p. Minerva, spring forks, grand climber, good condition; £20.—Cross, Jeweller, Rotherham.

MINERVA, in running order, 2 h.p., Chater-Lea fittings, tyres good; £7 10s.—Barker, Oxford Road, Worthing.

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ROC, 4 h.p. free engine, two speeds, magneto, spring forks, new condition; £32.—Houghton, Fish and Game Dealer, Rotherham.

GOOD Sound Twin Rex, too powerful, exchange for lower power and cash adjustment.—Yelland, 50, Preston Road, Brighton.

3 h.p. Humber, free engine, handle starting, new condition, perfect; £12, or exchange lightweight.—304, Garratt Lane, Earlsfield, S.W.

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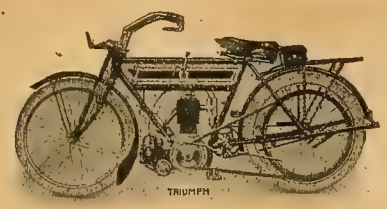
MINERVA Motor, Chater-Lea frame, Leguemare, with sidecar, complete, perfect order; accept £20, no offers; seen and tried.—36, Stroud Green Road, N.

1908 Rex, 3½ h.p. ball bearing engine, never unpacked; cost 38 guineas; owner cannot use this season; 33 guineas.—9,973, *The Motor Cycle* Offices, Coventry.

2¾ h.p. Magneto Phœnix-Minerva, two speeds, free engine, Clinchers (unpunctured); offers, or exchange twin. — 5, Alexandra Road, South Norwood, S.E.

3½ h.p. Ariel, M.O.V., 26 by 2¼ Palmer cords, new tyre and tube back, low built, cut-out, new accumulator; £13, near offer.—Bull, Leather Dealer, Church Road, Willesden.



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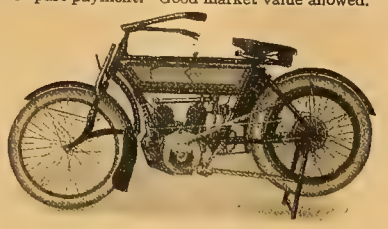

	£	s.
1908 VINDEC SPECIALS, Model F, 5 h.p., with two-speed gear	63	0
Model F, single speed	53	0
Model G, light tourist	52	0
Model H, 3½ h.p.	48	10

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1908 MINERVAS, 7/8, twins	45	0
4½ h.p., twins	39	0
3½ h.p., single	32	0
2¾ h.p.	29	0

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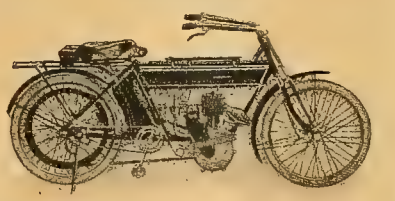

1908 QUADRANT, M.O.V., 84 x 88	47	10
1908 QUADRANT, A.O.V., 81 x 88	45	0

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1908 F.N., four cylinder	50	0
1908 F.N., lightweight	35	0

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3½ h.p. Brown, late 1907, excellent condition, Palmer cord tyres, variable pulley, stand, lamp, spares; cost £43, accept £20, no offers.—46, Disraeli Road, Forest Gate, E.

VINDEC, 5-6 h.p., twin magneto, perfect condition, with Montgomery sidecar, latest non-skid device, tyres as new; bargain, £38.—9,975, *The Motor Cycle* Offices, Coventry.

£5.—1¾ h.p. lightweight, surface carburetter, running order; or exchange lady-back tandem, or 3½ h.p. engine, with carburetter; offers. — Tasker, 20, Godman Road, Peckham Rye.

HUDDERSFIELD Agents for Triumph, N.S.U., Brown, Roc, Phelon-Moore, Vindec, Minerva; any make supplied; new and S.H. machines in stock.—Moldgreen Engineering Works.

2¾ h.p. Minerva-Eadie, Gloria, Palmer cords, good condition throughout, ride 50 miles to intending purchaser; £13; wanted, bicycle, H.T. magneto, sidecar.—A. Pinder, Horsforth, Leeds.

TRIUMPHS, 1908; early delivery; your old Triumph in part payment; £25 allowed for 1906, and £30 for 1907; other makes on application.—Rey, 5, Heath Street Motor Works, Hampstead. Tel. 2678, P.O.

£12.—3 h.p. Rex, Dunlop tyres, Main-Hilton stand, spares and tools, etc., all in splendid condition; cost 50 guineas; pair Xl'all spring forks, new, 12s.—Stored 57, East Street, Baker Street, W.

5-6 h.p. Twin Antoine (new), Chater-Lea, Fuller Syntonic trembler, Advance adjustable pulley, Palmer cord, back faultless; take sidecar anywhere; £25.—Wightman, 78, Montgomerie Road, Southsea.

£5.—Good Motor Cycle, 26in. wheels, low, extended head, less engine, takes inclined engine to 3½ h.p., tyres and frame worth the money; part exchange accepted.—22, Chaucer Road, Forest Gate.

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9 h.p. Bat-Jap, magneto, in tank, spring frame, Jap plate clutch, starting handle, very easy starter, crawls in traffic, very little used; cost over £70 few months ago, accept £50.—Longford, Uddingston.

3½ h.p. Minerva, spring forks and seat-pillar, M.O.V., 26 by 2¼ tyres, recently overhauled, splendid hill-climber, guaranteed in excellent conedition; accept £14 14s., lowest.—Reynolds, c/o Motor Works, Williton, Somerset.

MINERVA, 3 h.p., M.O.V., perfect condition, genuine Chater-Lea frame and fittings throughout, low, long bars, 26 by 2¼ Dunlop with non-skids, spares and tools; £16, take push bike part.—Grainger, Tudor Cottage, Forest Row.

TWIN Motor Cycle for Sale, 5 h.p. Sarolea, Chater-Lea frame, petrol gauge, 2½in. Palmers, butt-end tubes, long handle-bars, this machine is in splendid order; will accept first reasonable cash offer. — Makins, Enfield Lock Stores.

QUADRANT, 3½ h.p., never been ridden more than 500 miles, spring forks, Clincher tyres, two accumulators, stand and carrier, and other spares, good hill-climber, and very fast; price £25. — Thomas Jones, Wheathill, Burwarton, Bridgnorth.

GENTLEMAN'S Handsome low long-bodied 3½ h.p. Chater-Brown, 26in. by 2¼in. heavy Continentals, tool chest, foot brake, etc., expensively equipped; accept 14 guineas; photo; bought car.—North Lodge, Queen's Road, Teddington, London.

6 h.p. Jap, heavy flywheels, gear driven, magneto, guaranteed faultless; cost £68 in February, Bowden control, spares of everything, an ideal machine for touring or sidecarriage work; £40; seen by appointment.—Edwin Merrall, Crossflatts, Bingley, Yorkshire.

BROWN, 3½ h.p., magneto, horn, lamp, separate generator, stand-carrier, Peter Union puncture-proof band in back tyre, in excellent running order; what offers? or exchange for 1¾ h.p. F.N., 1908, cash adjustment. —Crockett, 2, Sunny Bank, Mardy, Abergavenny.

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REX Official London Agency, quote per return; exchanges; all models. — Store Street, W.C.

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REX Twin, 5 h.p., splendid order, £19 10s.; also modele de luxe, good condition throughout, 30 guineas.—Rex, Store Street, W.C.

REX, Store Street, W.C.—Clearance, second-hand machines, Minervas, Ariels, Rex, from £8.—Particulars on application.

F.N., 2¾ h.p., perfect; £12 10s.—Guy, 6, Herbert Street, Plaistow, London.

£6.—2¾ h.p. Clyde, in good order throughout; bargain.—39, Arngask Road, Catford.

ROVER, 3½ h.p., good condition, new tyre; £12 10s.—Evans, 46, High Street, Hampstead.

2¾ h.p. Werner, fast, powerful, perfect; £9.—C. Strutt, 124, Dennetts Road, New Cross, S.E.

ZEDEL, 2¾ h.p., low built, very fast; bargain, £10 10s.—41, Skelbrook Street, Wandsworth.

£5 10s.—1¾ h.p. Minerva, surface, good order. —Box L2,461, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

2¾ h.p. Hobart, tyres and condition good, splendid running order; £11.—Bentley, Sutton, Norwich.

5½ h.p. Two-speed Roc, castor wheel sidecar, both as new; £54.—No. 9,978, *The Motor Cycle* Offices, Coventry.

£14.—Kerry, 2¾ h.p., good running order; owner taken to car; trial.—44, Rusholme Road, Putney, S.W.

2¾ h.p. Kerry, low, reliable, and fast replated, re-enamelled; £12.—91, Stanhope Gardens, Harringay.

BROWN, 2¾ h.p., splendid condition; £16.—61, Penrose Street, Walworth, S.E. Trials appointment. 2186, Hop.

MINERVA 4½ h.p. Twin, perfect; £21 10s.; trial; appointment. — Lyndhurst, Shooter's Hill Road, Blackheath.

3 h.p. Triumph, perfect condition, spring seat-pillar, Lucas lamp, horn; £20.—Wallis, 88, Lansdowne Road, Croydon.

MINERVA 5 h.p. Twin, Chater-Lea build, just delivered; 25 guineas; appointment.—J. Neighbour, Walworth Road, S.E.

3½ h.p. Twin Werner, low machine, long bars, only soiled, and in beautiful order; £17 10s.—128, High Road, Tottenham.

3⅜ h.p. Rex, spring forks, Continentals, as new, grand goer; £15.—Address above.

3 h.p. Trent, Chater-Lea, long bars, low seat; a genuine bargain, £11 10s.—Address above.

2¼ h.p. Humber, Longuemare, almost new, grand hill-climber, long bars, etc., guaranteed; £8 10s.—Address above.

3¼ h.p. M.M.C., low-built, Chater-Lea frame, thoroughly done up, as new, very powerful and fast; real bargain, £12 10s.—Address above.

3½ h.p. London, Chater-Lea frame, handle-bar control, accessories, very fast and powerful, splendid condition and perfect working order; great bargain, £11 10s.—Address above.

5 h.p. Twin Hamilton, B. and B. carburetter, very fast and powerful, perfect condition, grand for passenger work; £17 10s. Address above.

MINERVA, 3½ h.p., spring forks, magneto, 26in. wheels, in splendid condition throughout; £22. — Maude's, Powell Street, Halifax.

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REX, all Models.	**L. M. C.**
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PHELON & MOORE 2-speed.	**MINERVAS.**
MOTO-REVE.	**MOTOSACOCHE.**
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F.N., 4-cyl.	**F.N. Lightweight.**
ZENETTES.	**ARIELS.**
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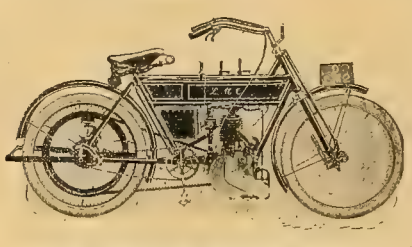

L.M.C., price with Magneto, 45 gns.
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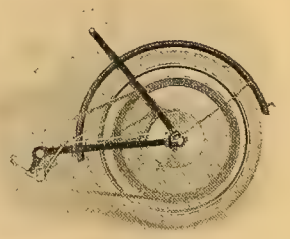

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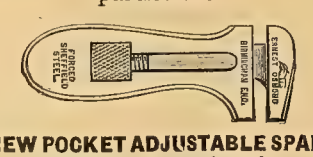

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MOTOR Trailer, strong, suit straight tube or saddle pillar; 35s.—28, Hurst Grove, Bedford.

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HALIFAX.—10-12 h.p. Beeston Humber, side entrance, carry five, all tyres new recently, non-skids behind; £90.

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CARR, Bury.—8-10 h.p. Humber car, four-cylinder, Cape hood, four-seater; £120; trial.

CARR, Bury.—9-11 h.p. Clement, two-cylinder, four-seater, capital order; £100; exchanges entertained.

4½ h.p. Swift Car, De Dion engine, seats two, good working order; £40.—Cowling, 25, Chapel Street, Bradford.

6-8 h.p. Pick, two-seater, back luggage carrier, brass lamps, splendid condition; bargain, £45 10s.—73, Church Street, Camberwell.

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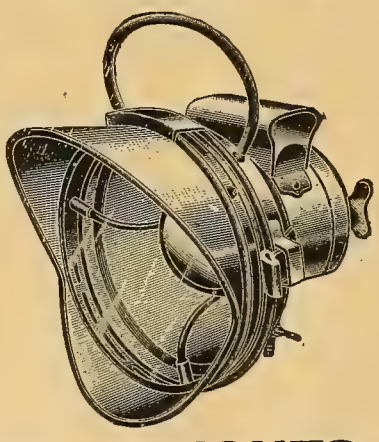

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16-22 h.p. Germain, side entrance, limo sine; £225, exchange. — 190, Mellis Road, Tooting.

10-12 h.p. Dennis, tonneau, two cylinde similar Renault; £125.—190, Mellis Road, Tooting.

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15 h.p. Forman, tonneau, four-cylind splendid condition; £110.—190, Mel son Road, Tooting.

OLDSMOBILE, 5½ h.p., perfect runni order; £22.—Francis, 6, Dalston La N.E.

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10-12 h.p. Dennis, tonneau, two cylinde new tyres; bargain. £65, part change either. — 98, Potternewton La Leeds.

ORIENT Buckboard, 5 h.p., two-speed, p fect condition; £35, motor cycle p exchange.—Reed, 7, Argyle Street, Gateshe

12-16 h.p. Provincial, two cylinders, se five, thorough going order, lam spares; £65. — 18, Hailsham Avenue, Str tham.

6 h.p. Oldsmobile Car, in good going or and condition; great cash barga room wanted; £17 10s.—H. Washington, Wheelock Street, Middlewich.

6 h.p. Wolseley, two-seater, three spe and reverse, hood, Stepney wh Lucas lamps, watch, tools and spares, fi class order; £60.—Jones, Lichfield.

CASH Bargain.—Simms car, tonneau, fo seater, equal artillery wheels, th speeds and reverse, in excellent conditi trial; £38 10s.; good tricar or motor cy part.—128, High Road, Tottenham.

10-12 h.p. Four-cylinder Leader, side trance, four seats, Cape hood, lam non-skids, spare tyre, a good car, just b overhauled (will show receipt); £140.—C. Halsall, 110, Wilton Road, Victoria Stati S.W.

SIMMS, 20-24 h.p., dual ignition, perf condition, run about 1,500 miles, he Collier tyres, 34 by 4½, chain drive, side trance body; lowest £125; any examinat or trial; photo.—Wenborn, Bungalow, E sledon, Southampton.

9 h.p. Riley Car, drip lubricator, 700 by grooved tyres, large toolbox, wa gauge, large acetylene lamps, electric b lamp; cost over £200; not run 1,500 mi in first-class condition; £126.—9,904, *The M Cycle* Offices, Coventry.

FOUR-CYLINDER 14 h.p. Star, 1906 (sl car), used very little, driven alw by owner, in first-class condition, hc spares, and Stepney wheel; price £250.— ply, G. Whitaker, Ravenswood, 52, Coor Road, Croydon, where car can be seen.

9 h.p. Riley Car, with underscreen, hc front lamps acetylene, back lamps e tric, grooved tyres on all four wheels, la toolbox, glass screen, mudguard extensi in good running order, appearance g —9,905, *The Motor Cycle* Offices, Coventry.

10-12 h.p. Twin Buchet Engine, Panh gears, cardan shaft, three speeds, reverse, highly painted, upholstered gr smart appearance, front and back entra tyres perfect, splendid running order, la brass head and side lamps, horn, tools, e £19, or consider exchange.—Fairfield, 2, N arke Street, Leicester.

LIGHT Smart Two-seater De Dion eng three speeds and reverse, thorou overhauled, fine condition, fast and relia trial by appointment; 35 guineas; 3½ Rover bicycle, in excellent order, powe flexible engine, low position, long ba cheap at 18 guineas; exchanges on eithe these.—Burnard, 16, Bethnal Green R London.

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

THE MOTOR CYCLE

Vol. 6. No. 271. June 3, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

Unattached Riders.

THE article published in these columns under the above heading does not appear to have been absolutely correct. We stated that the committee of the A.C.U. had decided to organise a scheme of association for unattached riders at 5s. per head. This statement was made on the strength of a proposition, duly seconded and carried, that the question be referred to the Relations Sub-committee. We naturally took this as a commencement, and were surprised to hear indirectly that the A.C.U. Committee has no intention of doing anything for unattached riders except at the ordinary fees of 10s. 6d. for provincial and £1 for town riders, which includes certain advantages which we do not think are required by the majority of riders.

At the same time, two or three provincial clubs, notably the S.E. Auto Cycle Association and the Bradford M.C.C., have not been loth to take advantage of this apparent apathy, and have decided to attach riders who are called associate members to distinguish them from full members. Associates pay 5s. subscription and an entrance fee of 2s. 6d., which includes affiliation to the A.C.U. and association with the R.A.C., full benefits of the Legal and Touring Departments of the A.C.U. and R.A.C., the right to exhibit the distinctive machine badge of the S.E.A.C.A., and representation on the General Committee of the R.A.C. and on the Council and Committee of the A.C.U. through the representatives of the S.E.A.C.A. The Bradford M.C.C. scheme is on the same lines.

Now the first question one naturally asks is, if it pays local clubs to give unattached riders certain benefits at a reduced fee, why should it not also be possible for the A.C.U. to do it, and why does the A.C.U. give unattached riders these benefits for 2s. when affiliated indirectly, and refuse to do so directly? In other words, the A.C.U. takes 2s. only for each associate, and allows the local or provincial body to retain the remaining 3s. True, the local club can influence unattached riders, but in our opinion for one who would join a small provincial body, fifty would associate themselves direct with the head organisation at the same fee. Can any influential member of the A.C.U. Committee enlighten us on the wisdom and policy of the above schemes? We have heard many statements regarding them, but no authoritative explanation beyond a semi-private communication that the A.C.U. did not intend to give something for nothing. Yet it is willing to accept from local clubs a fee of 2s. for doing work which it says cannot be done for 5s. if paid direct into its coffers by unattached riders. We have supported the A.C.U. through thick and thin, but we must say that the present policy is a weak one, for the simple reason that there is nothing to prevent a body like the S.E.A.C.A. eventually becoming a sufficiently powerful appendage to sway the body of the canine known as the A.C.U.

Motor Cycles at Brooklands.

THE majority of our readers will have seen in the daily press accounts of the action taken by a resident at Weybridge against Mr. Locke-King, the proprietor of Brooklands Track. Mr. King, unfortunately, lost his case, and has had in consequence to pay heavily for damages. We are indeed sorry for two reasons—firstly, for Mr. Locke-

King, whose disappointment has been considerable, the blow being a really cruel one, coming as it does at the beginning of the racing season; and, secondly, for motor cycling, since the result of the judge's decision has been to make the Brooklands authorities doubly careful to stop all unnecessary noise, and, bearing this in mind, they have decided to suspend motor cycle racing for the present. This is indeed hard, as Brooklands has been of much use to the movement, and would have been more later on, when motor cycle racing there had been developed further, since it is probably the safest track in England for a machine fitted with any sized engine travelling at any speed. We feel almost inclined to think that the motor cycle has been made a scapegoat for the sins of the powerful racing car. That it is noisy, no one can deny, but that it is as offensive to the *profanum vulgus* as its larger *confrère* is hard to believe. But the matter does not end here. The motor cycle has the reputation of being noisy, and on the principle that a dog with a bad name is better suspended than living, so this evil reputation has resulted in the temporary suspension of motor cycle racing at Brooklands.

Now, who is to blame? Brooklands? We must not be too hasty. Brooklands has been guilty of many errors, and these it is hastening to rectify, and probably when it has got over its scare and considered the matter calmly, we shall see motor cycle racing reinstated at Brooklands. No, we fear it is the inconsiderate member of the motor cycling community who rides through populous places either without a silencer, or with one and without using it, who is as much to blame as anyone for bringing this bad name upon motor bicycles, and if the A.A. is anxious to carry out its work of reforming the inconsiderate driver by means of its newly-formed Committee of Public Safety, it should report all cases of ultra-noisy motor bicycles and cars to headquarters. However, this is rather beside the point. The sad news about Brooklands we learnt in the early part of the week from Mr. Rodakowski himself, and on our suggesting that motor cycles fitted with effective silencers should compete, he replied that the trial was not worth the risk. The result is that the race open to naval officers at Whitsun is cancelled. There is no doubt that the Brooklands authorities are badly scared, but the sooner they recover and treat the motor cycling side of motor racing in a calm and sensible manner the better will motor cyclists be pleased. There is no doubt that motor cycle racing drew a considerable crowd to the track. Probably a simple way out of the difficulty would be found if a joint committee of the A.C.U. and B.A.R.C. were formed.

Start of the three miles race at the *Sport and Play* meeting at Birmingham, May 23rd. C. R. Collier v. H. V. Colver. C. R. Collier, the winner, is on the left.

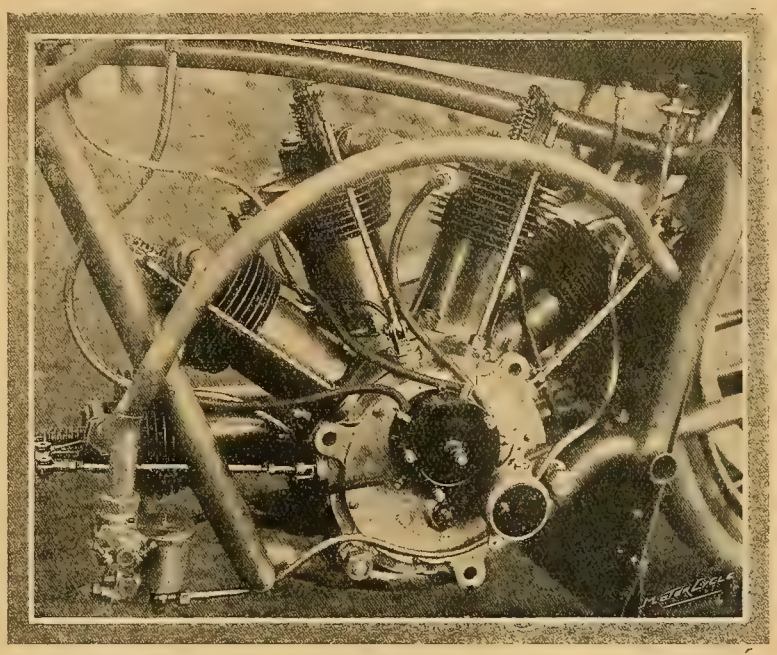
North Wales is an interesting touring ground for motor cyclists, and is probably the most popular with that vast population inhabitating the counties of Lancashire, Cheshire, and Yorkshire. A handy little guide to North Wales is "Throup's Cyclists' and Motorists' Guide," price 6d. nett. A copy of this has just reached us, and it contains a considerable amount of useful information with a good map and route distances. It is published by T. Throup, publisher, Bradford. Another handy little booklet is Throup's index marks, speed tables, lighting up tables, and main roads guide. It is priced at 1d. only.

A Goodrich all rubber non-skid tyre on the back wheel of a 3½ h.p. machine we have in use has not been touched with the pump in seven hundred miles' running. As regards wear, the tread is now rather thin, but the studs at the sides of the tread are still as good as new. In grease, the studs when new are a most effective preventive against side-slip, and we have not found the tyre slow the machine on the flat or in hill-climbing. The cover we are using is of 2¼in. section, but all sizes can be obtained, and the makers also undertake to fit these rubber studded bands to existing tyres. The makers are the B. F. Goodrich Co., 7, Snow Hill, E.C.

A Five-cylindered Motor Bicycle.

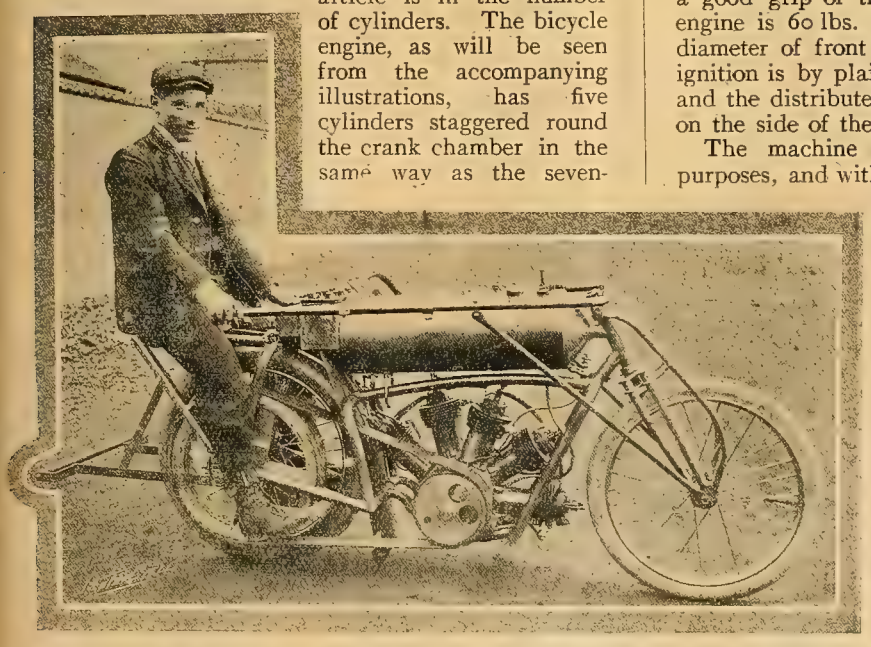
ON January 15th there appeared in *The Motor Cycle*, page 56, sectional line drawings of the lightest petrol engine for its power which has ever been constructed. The name of this engine, as readers may remember, is the Esnault-Pelterie, designed and built in France for aerial navigation. The engine has several very distinguishing and clever features, principal among which may be mentioned the method of attaching the connecting rods to the crankshaft. The valves are situated in the top of the combustion head, and the inlet and exhaust valves are combined.

We reproduce herewith an illustration in section of the valve arrangement, as without it it would be difficult to understand the method of operating the valves and distributing the inlet and exhaust gases. The line drawing shows the exhaust slide valve A seated. When the slide valve A is opened towards the end of the working stroke, it leaves a free passage for the exhaust gases to escape through the holes B and C directly into the atmosphere. At the end of the exhaust stroke the slide valve A, instead of closing, opens still further, causing the collar D to come to rest against the corner of the angle E, so that air cannot enter *viâ* C and B. When the collar D is at rest, the inlet holes F are open, and there is direct communication between the carburetter and the cylinder *viâ* the holes H and F. The only practical difference between the seven-cylindered engine constructed for propelling an aeroplane and the five-cylindered motor bicycle engine which is the subject of the present article is in the number of cylinders. The bicycle engine, as will be seen from the accompanying illustrations, has five cylinders staggered round the crank chamber in the same way as the seven-cylindered engine. One carburetter serves the whole five cylinders, whereas in the seven-cylindered engine there is one carburetter for each group of cylinders. It will be noticed that the designer of the motor bicycle has cleverly utilised the space occupied by the crank case, and has dished a large flat-faced engine pulley over it. The back belt rim is of wood with wooden arms, and should allow the flat belt to obtain a good grip of the pulley face. The weight of the engine is 60 lbs. only, length of wheelbase 3ft. 5in., diameter of front wheel 28in., rear wheel 30in. The ignition is by plain coil and make and break contact, and the distributer is the larger of the two cases seen on the side of the crank case in the top picture.

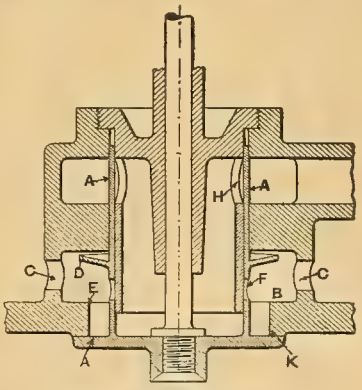


The lightest engine for its power yet constructed for a motor bicycle. The carburetter fitted is a Claudel.

The machine is, of course, intended for pacing purposes, and with its aid a French cyclist (Gombault, paced by Coutant) hopes to beat the record by covering 100 kilometres within the hour.



The 20 h.p. five-cylindered Esnault-Pelterie engine fitted to a pacing machine. The total weight is 330 lbs.



The valve arrangement.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(*Continued from page 416.*)

OTHER POINTS IN ENGINE TUNING.

1. Sufficient lubrication as to quantity and quality of oil.
2. Absence of wear in all moving parts.
3. Large, straight exhaust pipe, leading to silencer, having large vent holes and well perforated partitions unchoked by dirt.
4. Cleanliness of piston head and combustion chamber.
5. Cleanliness of radiating fins; or if a water-cooled engine, perfect cleanliness and working of cooling system.

THE CARBURETTER.

Must be (a) clean and (b) properly adjusted.

Cleanliness is easily verified.

Adjustment is a matter on which no absolute laws can be laid down. See previous hints with reference to setting petrol level to avoid flooding. It then remains to see if jet is of correct size, and if sufficient air is admitted.

W. G. Ross, one of the Cambridge University M.C.C. team, in the competition with the Cambridgeshire M.C.C. on the 23rd ult.

If you want maximum power, and the engine will stand it without running hot, use a jet of 1-32in. bore, or a 10 jet Longuemare on all motor cycle engines. Most engines then require a choke tube of about twenty-four millimetres diameter—this choke tube controls the amount of air admitted below the jet. It then remains to set the air admitted above the jet. This will be about right, if at top speed on the hottest days the engine will *just* take all the extra air you can give, *and no more.* But I do not know a single carburetter which, as sent out, affords sufficient "top" air for a twin-cylinder cycle engine, and with practically all such engines, it will pay to add an air slide to the inlet pipe.

In cleaning the carburetter do not omit to brush all gauzes, whether internal or external, with petrol.

THE IGNITION.

In tuning the ignition, as with everything else, the first point is to see that everything is scrupulously clean. All connections must be clean and bright, all contacts smooth, and in true register, all wiring intact, as short as possible, and all thin strands twisted together. The plug points should be 1-32in. apart for coil ignition, and the makers say .4 of a millimetre for high tension magneto.

With a high tension magneto see fibre ring is intact, and timing correct; detach and clean contact maker, and wipe brass face at rear of it. Detach oval plate above contact maker, and wipe fibre washer behind it. Paint over switch screw, washers, and carrier with shellac to avoid dirt affecting them. See if fibre washer surrounding carrier of fixed platinum on contact breaker is intact; wash out oil reservoirs with paraffin, and refill. Clean exterior of contact breaker, and especially contact point of flat spring. Clean ends of brushes on high tension terminals, unscrewing them gingerly, as they are brittle.

With accumulator ignition see that cells register a full four volts. See that earth from contact breaker is not made by an oily shaft, and if it is, carry a short extra wire to engine for it, or put two or three coils of an old weak inlet valve spring on the shaft behind the cam—this has a very good effect. If a wipe contact, clean, and see that the circumference of wiping surface is true, and that wiper is bearing strongly against it. Verify timing. Adjust contacts by running engine on stand, with a heavy friend in saddle; the adjustment which permits of the highest engine speed, and yet allows engine to start readily, is right. If a trembler coil is used with make and break contact, test all four contacts in this way. If a twin-cylinder engine is used, first adjust one cylinder to run its fastest, and then adjust the other cylinder till it runs at the same speed. Verify by shorting one sparking plug with a screwdriver provided with a wood handle, or depressing its inlet valve.

TYRES.

The tyres should be inflated hard without being so hard that they cause excessive vibration. The degree of inflation depends on rider's weight. Thick treads slow the machine a great deal, but it is advisable to order tyres well up to the work.

WIRING.

222. The longer and the thinner the wiring, the greater its resistance. Use, therefore, short, thick wires, with many strands, as they are less liable to fracture.

III. Troubles.

TRACING TROUBLE.

223. An intelligent motor cyclist will almost always know why his engine is misfiring or has stopped altogether before he has dismounted, and it is astonishing how soon this facility is acquired. Let us, however, suppose that the rider is a complete novice, that his engine has stopped, and that he has not the maziest glimmering of the reason. Make sure—

1. That there is petrol in the tank.
2. That the switch is on.
3. That the levers are set accurately for running.

Having thus eliminated sheer personal carelessness, let him discover in which department of his propelling mechanism the fault lies.

1. Detach thick wire to sparking plug, hold it ¼in. from end of plug, and with switch on, make and break contact at contact breaker on engine. If no spark the fault is electrical. (Be careful to hold wire only by rubber.) See previous paragraphs for testing high tension magnetos.

2. If there is a good spark, see if petrol is reaching the carburetter. See tap is open, and joggle float needle up and down; if petrol flows out of bottom of spray chamber the supply is probably all right.

3. If gas supply and ignition of it are right, something must be amiss with the engine; therefore push machine with valve lifter dropped, and see if back wheel skids, revealing good compression. If m.o.v., see both are working; if a.o.i.v., press it down, and notice that it is not gummy.

The above simple tests will immediately reveal the nature of any ordinary derangements, and having performed them, the rider can proceed to test either the ignition, or the carburetter, or the engine, for other faults which will be enumerated later.

A competitor in the Sunderland and District M.C.C Hill-climb at Tunstall Hope.

How We Climbed Sutton Bank.

WHEN I saw the announcement in *The Motor Cycle* of the A.C.U. climb up Sutton Bank, it brought to my mind the time when my brother and I "climbed" the hill. Several articles have been written describing this notorious hill, but, unfortunately for us, none of them appeared until after we had made the attempt, or we should never have had the audacity to attempt to scale its heights on a single-geared 3½ h.p. bicycle and sidecar.

We had arranged to take a run from Scarborough to Richmond and back, and set out on a Whit-Monday morning with every prospect of having a grand time. The weather was fine and the motor in grand trim, so for the first twenty miles to Malton we hummed along merrily. Here, however, we had to pick our way slowly amongst gaily-decorated farm horses, which were evidently gathering up for a show, and they seemed to have a dislike for motors. We, however, emerged safely, and were soon clear away on the road to York. Not far beyond Malton we encountered one or two rather stiff hills, and up one of these our little engine refused to take the full load, so we had to dismount, and as it was too steep to make another start we had to push. Whilst enjoying this exercise we discovered that we were in a police trap, but all fear of receiving a summons was banished from our minds by the assurance of the man in blue that we were well within the legal limit.

We Miss Our Way.

We made short work of the next twenty miles to York, but here our troubles began. We got into the city all right, but could not find our way out, for, after making careful enquiries as to which road to take, we found, after travelling about a mile, that we were on the road to Tadcaster. We retraced our path, and made further enquiries; this time we were sure we were on the right road. However, about three miles out, we saw a signpost "11 Miles to Wetherby." Once more we returned to York, and at the third attempt succeeded in finding the right road. The surface being excellent, we made up for lost time, and kept up an average well over the limit to Boroughbridge, where we stopped for a little refreshment, and then on again towards Richmond. Passing through a small village we saw a sign "Motor Spirit," and as our supply was getting rather low we stopped to fill up, and on asking the price were told 1s. 10d. a gallon! Under the circumstances, we contented ourselves with half a gallon. As we neared Richmond, the roads showed signs of recent heavy rain, although we only encountered one short shower.

Arriving safely at our destination, we found the whole of the quaint old town in the possession of cyclists, there being a big club meet on the way, and we had great difficulty in finding a place to put up for the night. Eventually room was found for us at a little temperance hotel, and after tea we set off to explore the beauties of the dale, on the side of which the town is built. Rain, however, commenced falling, and we were soon glad to get back to supper and bed.

Muddy Roads on the Return Journey.

Next morning the rain had not ceased, so we abandoned the idea of an early start, and spent the morning tinkering with the motor. Our worthy landlord was meanwhile regaling us with funny stories about a Scotch motorist who had stayed at his hotel, and who seems to have spent the greater part of his time mending punctures, or rather attempting to do so. His mode of procedure was to put on about half a tube of solution, dab the patch on quick, stand on it for a quarter of an hour, and then wonder why it would curl up when he took his foot off.

The rain showing no signs of abating, we decided to make a start, and, despite the frightfully muddy roads, we were soon speeding merrily along. After the first few miles, however, the wet and mud began to tell on the belt, and at each rise we got a most effective free engine; but, worse than this, a strange noise began to develop, apparently in the engine. As it did not affect its running, we kept on for some time; but it got gradually worse, so we decided to dismount and try to find out what was wrong. Try as we would, we could not locate it; first it seemed to come from the valves, then the magneto, then somewhere else, so after putting oil on every available part we gave it up.

An Evil Impulse.

As we had stopped I thought I would tighten the belt, and while thus employed some evil impulse possessed my brother to study his map, and he made

The North West London M.C.C. Run to Coventry and Back. No. 11—C. J. Burton (3½ h.p. Vindec and sidecar) ready to start on the return journey.

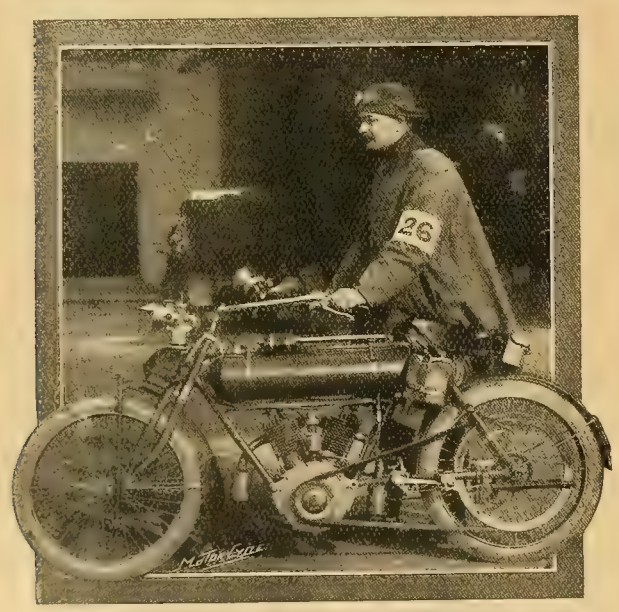
the discovery that if we turned to the left a few miles further on and passed through Thirsk and over the Hambleton Hills we should cut off about thirty miles. With visions of something wrong inside the engine, we were only too glad of a short cut home, but if we had known what was before us I think we would gladly have gone fifty miles round. We had heard of Sutton Bank, but thought it only a short steep hill, and we said we could easily push the machine up if it refused to climb it.

How We Climbed Sutton Bank.—

On restarting, the engine pulled beautifully, but the mysterious noise still continuing made us feel anything but comfortable. We were quite convinced that at least the gudgeon pin screw had come out and was grinding itself to pieces among the flywheels. After passing through Thirsk we noticed the strange noise was dying away as gradually as it had commenced, and soon we found ourselves in the little village of Sutton. We were blissfully unconscious of what was in store for us. Having covered nearly thirty miles of very muddy roads, the machine was by this time pretty well coated with mud, and the free-wheel had become free both ways, which made it impossible to give any help with the pedals.

The Bank in Sight.

When we came in sight of the hill our hearts began to sink. Only those who have been there and seen for themselves can fully appreciate our feelings; but the worst is not seen from the bottom, or I think, even though we had ridden so far, we should have felt inclined to turn back. As it was, with the empty sidecar and a cool engine, I made a rush for the hill, but I did not get far, the pedalling clutch still refusing



E. W. Ashworth, who won a silver cup in the North West London M.C.C. Twelve Hours' Run to Coventry and Back on May 23rd. The machine is a 7-8 h.p. Ardennes model Minerva.

to act, in spite of liberal doses of paraffin and oil administered at the bottom of the hill. When the engine slowed down there was nothing for it but to let it stop, and to jam on the brakes to prevent a hurried descent (backwards). Then commenced the climb proper. By this time the clouds had cleared away and the sun was shining. It seemed to us hotter than it had ever been before, so off came our waterproof coats and overalls, and we started to push in earnest. We progressed very well at first, but when we came to the 1 in 4 portion we had to divest ourselves of more superfluous clothing, and then push for all we were worth; but even then every few yards we had to stop, put a stone which we were carrying for the purpose behind the wheel, and rest. Whilst we were resting on the steepest part of the hill a large car passed us going down with its brakes so tight on that both back wheels were locked, and it was simply sliding down the hill.

Once we had passed the steepest part we were soon at the corner, only to find stretching away before us as far as we could see more hill almost as bad as what we had just come up. The surface of the road was so poor that it was difficult to get a foothold, but we bravely started on the second part of the climb. We soon found out, however, that pushing a motor bicycle scaling over 160 lbs. and a sidecar in addition had a tendency to make one feel tired. So once more we sat down to rest, and were just expressing a wish that a traction engine would come along and give us a tow up when round the corner appeared a pony and trap. Our spirits began to rise. If only we could harness that pony to the front of our bicycle; but no, our dignity would not allow that, so we started off again. It was no use; we were soon overtaken, and the owner of the pony, evidently touched with compassion for two poor motor cyclists, offered to take us in tow. After he had assured us that he had towed up many a motor bicyclist before, we were only too pleased to accept his offer.

Reduced to One Actual Horse-power.

He took off the reins, and we hitched our machine behind the trap with them. Talk about 3½ h.p., that pony simply gave a wink, put his tongue into the corner of his mouth, and with a contemptible sniff set off and pulled the trap, motor, and sidecar up to the top. What a relief to us, and what a view met our gaze when we eventually reached the top. Stretching away for miles around lay magnificent country; such a sight could only be gained from the very top of the hill. Of one thing I am certain; I would not attempt the Sutton Bank climb again with a single geared machine and sidecar, lovely as the view is, unless I knew there would be a pony at the bottom to assist us.

All the way we had cheered one another with the thought that from the top there was five miles all downhill to Helmsley, so after a splendid tea at the Hambleton Hotel we set off again. We had, however, been told at the hotel not to take the road shown on the map, or we should have another bad hill to climb near Rievaulx, but to keep to the top of the hills, and we should have level road for about three miles, and then a gentle down slope right to Helmsley. We took the advice, and for about a mile all went well; afterwards the road began to deteriorate into a second-grade cart track, with ruts three or four inches deep, and the whole of the surface made frightfully soft by the rain. I had great difficulty in keeping the wheels out of the ruts, but succeeded until about halfway down the hill, when a bit of extra bad road caused the sidecar wheel to slip into the rut, and before we knew where we were we were charging across the grass at the side of the road. Luckily for us there was no ditch, and we pulled up safely close under the hedge. After that we proceeded more carefully to Helmsley, where at last we got back upon decent roads.

From here to Scarborough we had a grand run, covering the thirty-two miles in a little over an hour and a half. And so ended a two days' ride, which had certainly been full of incident, and for the most part very enjoyable.

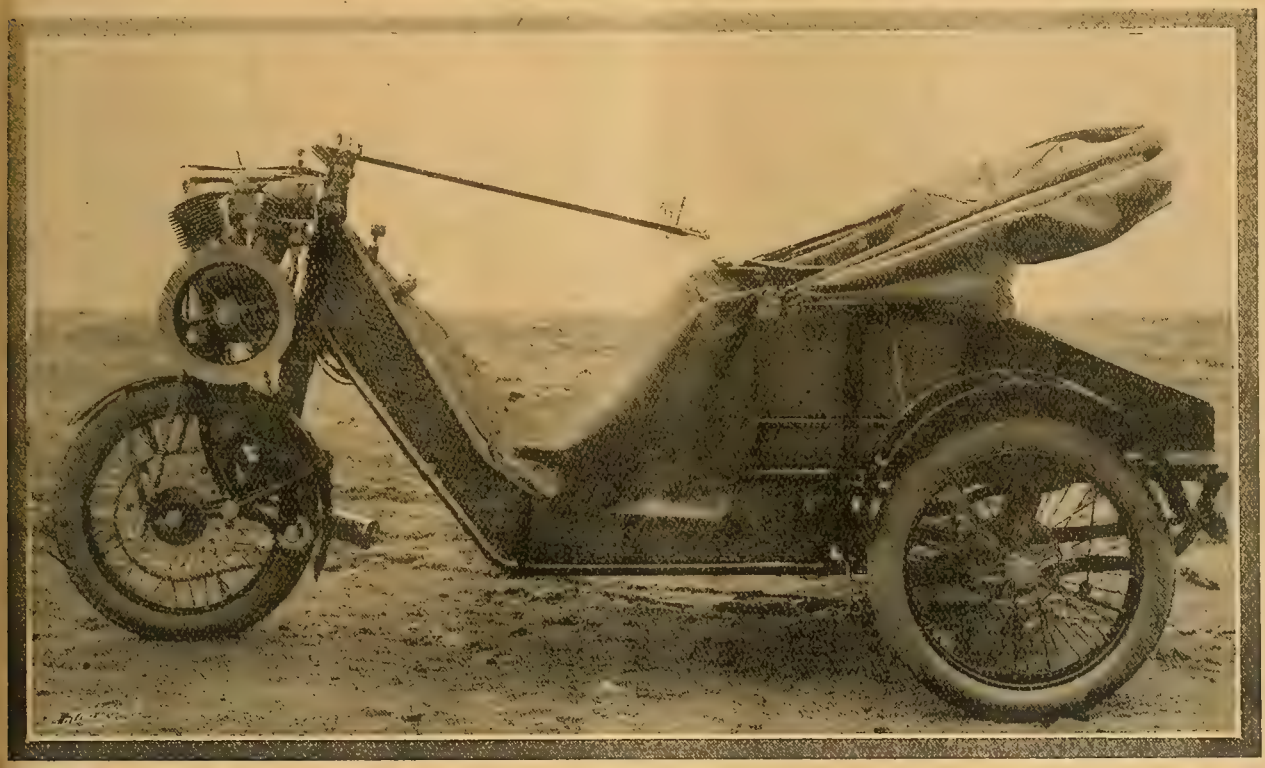
What the mysterious noise in the engine was we have never discovered. AJ 226.

An Interesting Three-wheeled Passenger Vehicle.

A MOST interesting two-seated three-wheeler is the 8 h.p. Phenomobile, sole concessionnaires for which are the New Era Motor Co., 8, Lonsdale Road, West Kilburn. The accompanying illustration shows that the motive power is an h.p. air-cooled engine, the cylinders of which have a bore and stroke of 82 mm. by 84 mm. The flywheel is a heavy rimmed external one, and the transmission is by a single chain running round two jockey pulleys driving the front wheel, the hub of which is the well-known two-speed geared Nala, built specially strong for the purpose. It will also be noticed that the front of the machine, including the engine, is suspended on good spring forks. The carburetter is of the float feed type, and has an extra air shutter, by means of which the air supply can be reduced for starting in cold weather. The lubrication is effected by a drip feed lubricator attached to the steering column. A trigger is situated on the top of the inlet pipes, which depresses two levers, which release the inlet valves should the latter become sticky, or when it is found to be necessary to release the compression for the purpose of turning round the engine. The exhaust, before entering the silencer proper, passes through an expansion chamber, which relieves much of the direct pressure, and causes the engine to run silently. Either magneto or accumulator ignition can be fitted. The forward part of the machine forms the petrol tank, the petrol being delivered by pressure to the carburetter. The handle of the steering tiller forms the change-speed lever, the low speed brake and the clutch of the epicyclic gear being controlled by this means. The spark, air, and throttle levers are also placed at the end of the tiller.

A short run in London traffic gave us a good opportunity of watching the behaviour of the machine, especially its silent running, its flexibility, and good system of springing. In all of the above respects it surprised us agreeably. Machines similar to the above are to be seen running daily in the streets of Berlin.

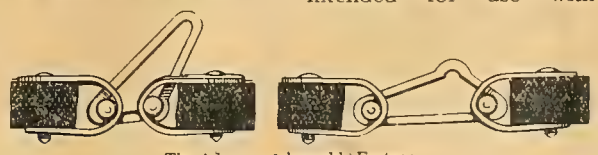
The vehicle we have just described is one of the first to be brought into England, consequently a few alterations in detail may be expected shortly. We noticed that the running of the engine was particularly smooth, the large flywheel being of great assistance in enabling the engine to pick up speed quickly and to run slowly.



The Phenomobile Three-wheeler, with seats side by side, propelled by a twin-cylinder air-cooled engine through a two-speed Nala hub gear.

The two annexed line illustrations of adjustable fasteners are those of the Advance Manufacturing Co., Northampton, and the Stanley Dermatine Motor Belt Co., Bromley, Kent. They are both intended for use with adjustable pulleys, and also provide a quick and handy method of shortening the belt on a long-distance run, without the necessity to use any tools. The sketches are self-explanatory.

The Stanley Adjustable Fastener



The Advance Adjustable Fastene

Land's End to John-o'-Groat's Trial.

THE general arrangements of this trial are well in hand, but we understand from the secretary of the Auto Cycle Union that, although he has already received a number of offers to assist at various places along the route, he still requires a considerable number of helpers. The following is the route to be followed, and he will be glad to hear from motor cyclists residing at or near to any of these places willing to act as honorary checkers, marshals, etc.:

MONDAY, JULY 13TH.

Land's End		Bodmin	57
Penzance	10	Launceston	79
Hayle	17¼	Oakehampton	97½
Camborne	23½	Exeter	120½
Redruth	27	Cullompton	133¼
Zelah	—	Wellington	145¾
Mitchell	40½	Taunton	152½

TUESDAY, JULY 14TH.

Bridgwater	163¼	Worcester	256¾
Highbridge	170½	Kidderminster	271¼
Cross	178	Bridgnorth	284¾
Churchill	183	Wellington	298¾
Bristol	196	Hodnet	309¾
Stone	213	Whitchurch	319¾
Gloucester	230½	Tarporley	333¾
Tewkesbury	241¼	Warrington	352¼

WEDNESDAY, JULY 15TH.

Wigan	364½	Floriston	—
Preston	381¾	Gretna Green	480
Lancaster	403¼	Kirkpatrick	483
Kendal	424½	Ecclefechan	487½
Shap	440	Lockerbie	495
Penrith	450½	Beattock	509
Carlisle	468½	Moffat	511

THURSDAY, JULY 16TH.

Crawford	529	Denny	579
Abingdon	532	Stirling	586
Douglashill	541	Bridge of Allan	589
Lanark	550¾	Dunblane	592
Carluke	556¼	Auchterarder	606
Newmaine	553¾	Perth	621
Airdrie	567	Dunkeld	636
Cumbernauld	572¼	Pitlochry	648

FRIDAY, JULY 17TH.

Blair Athole	655½	Calcabuck	734
Struan	659½	Inverness	736
Dalnaspidal Station	670½	Beauly	748
Dalwhinnie	679	Conan	758
Kingussie	693	Dingwall	757
Aviemore Station	705	Evanton	763
Carrbridge	712¼	Alnes	767
Freeburn Inn	720¾	Invergordon	770
Craggie Inn	728¾	Tain	782

SATURDAY, JULY 18TH.

Bonar Bridge	797½	Dunbeath	854
Clashmore	807	Latheron	858
Dornoch	810½	Lybster	861
Mound	817¼	Ulbster	868
Golspie	321¾	Thrumster	871
Brora	827	Wick	875
Helmsdale	838	Keiss	883
Berriedale	848	John-o'-Groat's	893

Offers of assistance should be sent to the Secretary Auto Cycle Union, 18, Down Street, Piccadilly, W.

We shall publish contour sections of the most difficu portions of the route in our next issue.

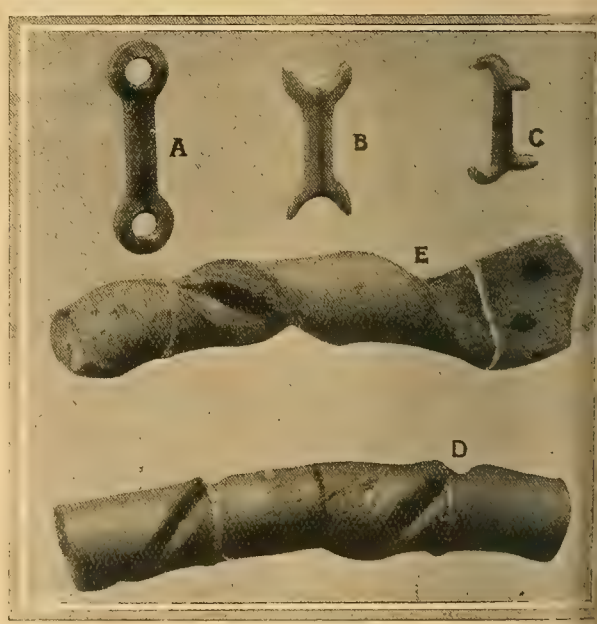
J. A. Prestwich and Co., 1, Landsdowne Road Tottenham, N., inform us that they have registered J.A.P. as a trade mark for all their manufactures.

Fastener for Round Belts.

RIDERS of lightweight machines using round twisted rawhide belts will be interested in the accompanying illustration and description of a fastening for round belts, which was illustrated in *The Autocar* of May 23rd. Mr. W. E. Corcutt, of the Racecourse Garage, Doncaster, who made the fastener, mentions that it is very satisfactory for fan belt drives on cars, but the trouble in making a satisfactory connection for a twisted rawhide belt on a motor bicycle caused him to devise the hook which is the subject of the illustration. Mr. Corcutt says:

"The -shaped connecter is neither neat nor secure, and may be vastly improved upon by what is virtually a grappler ℵ hook, the four points being so turned that the twisting stress in the belt tends to keep the connecter embedded in the belt.

"For a fan belt this grappler hook may be made from a suitable side plate off a cycle chain. The illustrations show the method of making a larger type grappler hook, as aforetime made and used by the writer for motor cycle twisted belts. A is a side plate off an old type 1in. pitch roller chain. B shows it cut across the rivet holes and the four resulting ends opened out somewhat, and all pointed. C shows these four points turned while hot by means of a pair of round-nosed pliers until the device is a double-ended grappler, but the four points must be turned left or right hand, according to whether the belt has a left or right-hand twist. D shows the ends of the belt connected or grappled together. E shows the end of the belt to be connected. It has two small hole punched or pricked through each end, into which hole



the two points of one end of the grappler connecte engage."

DUNLOP

FURTHER SUCCESSES

of Dunlop motor-cycle tyres.

SHARPENHOE HILL-CLIMB,

Saturday, May 2nd, 1908.

Single-cylinder class: Mr. R. M. Brice on a $3\frac{1}{2}$ h.p. Brown, fitted with Dunlops,

FIRST,

making

FASTEST TIME

in class.

The fastest time of the meeting, which was made on a twin-cylinder machine, only beat that of Mr. Brice by two-fifths of a second!

Send for booklet, gratis and post free.

DUNLOP TYRE CO., Ltd., Aston, BIRMINGHAM; Alma Street, COVENTRY.
Branches: London, Nottingham, Manchester, Newcastle, Norwich, Bristol, Leeds, Glasgow, Dublin, Belfast.

"Simply Incomparable."

Enagh Manse, Ballymoney, Co. Antrim, 27th February, 1908.

"I have just heard of Mr. F. Newton's wonderful performance on Palmer Cord Tyres. It proves these to be on cars just what I have found them on a motor cycle—simply incomparable.

"I ride all days and in all weathers, and tyre troubles were the bane of my life till I got Palmer's Cords. Now I can ride for months without re-inflating.

"I feel it only due to give you this little bit of my experience, and wish you success.

Signed (Rev.) J. RAMSEY."

Whether for Cycle, Motor Cycle, or Motor,

PALMERS

are "simply incomparable." This all-round excellence is, of course, due to their sound construction on scientific principles.

Write for our Manual, gratis and post free.

THE PALMER TYRE LTD., Shaftesbury Avenue, LONDON, W.C.

PHÄNOMEN Motor Cycles.

The Hall Mark of Mechanical Efficiency. **With 2-Speed Gear.**

Death of the Starting Handle.

Any motor cyclist who has handled a **Phanomen** 2-speed machine, would not think of returning to the **old and laborious method of handle starting**, besides, think of the convenience and comfort, being able to **"start up" in the saddle.** No need to dismount in traffic to re-start the engine. Just the very thing for London traffic or touring in mountainous districts. The gear can be changed so rapidly without any shock, and **both feet being free** to preserve balance when **starting or turning in very confined places,** makes this gear stand out as quite the finest thing in variable gears yet put on the market. **Its reliability** has been proved in both this year's **Quarterly Trials.**

Trial runs with pleasure, by appointment.

A Customer writes—

I have a 3 h.p. Phanomen, magneto, 2-speed NALA Gear, and am delighted with it; it is the centre of attraction round here where the NALA is hardly known. I am endeavouring to persuade my friends to speculate in a Phanomen, as they seem quite satisfied with its performances and **I will not sell mine at any price.** I have had nine motor cycles, but the Phanomen beats all.

Showroom: 49, King Square, President Street, Goswell Road, E.C.; also at the Service Co., Ltd., 292, High Holborn, W.C.

Agent for Cardiff and District—ROBERT BEVAN, 31, Castle Street, Cardiff.

PHANOMEN MOTORS.

OCCASIONAL COMMENTS.

By "IXION."

I am Not a Dealer.

One or two readers have written me of late for assistance in the sale or exchange of machines. I wish, therefore, to state once for all that I cannot under any circumstances interest myself in any kind or sort of deal.

Leaky Inlet Domes.

A rider recounts prolonged misfiring with a twin-cylinder Peugeot, misfiring which was the more puzzling because it was confined to the rear cylinder, and was not in any way connected with the ignition. He finally solved the problem by making the dome over the rear inlet valve an airtight fit. The misfiring was most pronounced when the throttle was nearly closed, and this naturally suggested to him that the cause was excess of air supply to the erring cylinder. It is probable that a great deal of misfiring on twin-cylinder motor cycles is ascribable to this cause, especially as riders are for ever meddling with their valves, and the facilities for making a good job of this particular joint are seldom of the best design or workmanship.

More "True" Stories!

A kindly wag has sent me some more "true" motor cycling yarns for readers to add to their collections. One friend of his suspends his machine from the roof of a shed during the winter to save the tyres. One night a mouse, running about the shelf, fell on to the front tyre, and caused the wheel to revolve. The mouse began to climb up the tyre to get to the top, but the wheel continuing to revolve, he made no progress. The owner on coming in next morning found the wheel still revolving, the mouse still scrambling upwards and looking extremely thirsty, while the cyclometer registered no less than eighty-three miles!

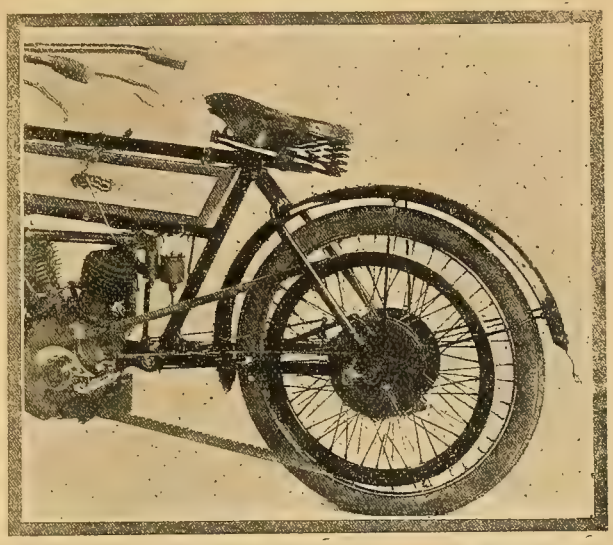
The same writer enjoys the acquaintance of another friend, also a motor cyclist of unimpeachable integrity. This gentleman was one day hung up on the road by some inscrutable magneto trouble. A brilliant expedient finally occurred to him. Seizing a handful of small flints culled from the roadside, he injected them into the cylinder *viâ* the sparking plug orifice. He then replaced the plug, and on pedalling the machine was rewarded by extremely powerful explosions. The explanation of this smart repair was that the piston forced the flinty particles violently together, and caused them to emit the very fattest sort of sparks.

A Point *re* Sidecars.

I do not know how far the average "passenger" motor cyclist has realised one great merit of the sidecar, and this is its great luggage carrying capacity. Luggage looks, and is, an excrescence on the most luxurious tricar, but a sidecar lends itself admirably to baggage. A large Gladstone bag or wicker basket can be carried under the seat, and the spare cover and tubes look positively handsome when strapped to the back of the chair. In addition, a good deal can be carried over the rear wheel of the cycle without getting in the way, as it does over the rear wheel of a tricar, and the weight over the driving wheel is a real advantage, as it gives the tyre a good grip. On a tricar, luggage has to be carried either on side platforms, where it looks ugly and is horribly in the way, or in the trough of the front seat, where it wrings many a malediction from a tender-toed or long-legged passenger. This year I should not be surprised if a sidecarist won the medal offered by *The Motor Cycle* for privately-owned passenger machines in the End-to end.

Ladies' Motor Bicycles.

I am rather sorry to see the majority of our few lady riders still attached to the 3½ h.p. 160 lb. type of machine. Granting that there are a few sturdy unconventional girls, used to managing a powerful horse, to playing hockey, and other exercises demanding muscle and stamina, the majority of girls funk the weight of motor cycling more than anything else. Now that there are first-rate little 1¼ h.p. engines on the



A 1908 Twin Vindec, fitted with the Roc gear and free-engine conversion set by A. W. Wall, Ltd

market, it is possible to get a lady's mount of ample strength and stability scaling no more than 84 lbs., and when Mrs. "Ixion" takes the plunge my specification for her will be as follows:

Engine.—A lightweight, not exceeding 1¾ h.p. at the very outside.

Ignition.—Magneto.

Control.—Handle-bar valve lift; handle-bar interconnected throttle and spark; automatic carburetter; handle-bar emergency switch.

Frame.—Light, dropped, with small tanks (very few ladies go in for 100 miles non-stops); spring forks; spring seat-pillar.

Tyres.—2in. (ladies hate punctures).

Transmission.—Belt, with two-speed pedalling gear to facilitate starting.

Brake.—Hand-applied shoe on rear belt rim.

This machine will be very easy to drive, as the single lever will be merely advanced or retarded, according to severity of work or pace required. It will start, when not gummy, on one turn of the pedals, owing to use of a very low second pedalling gear. It will climb any hill in the country, and it will be easy to handle when she is dismounted.

QUESTION & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Pedalling Gear Recommended.

Would you kindly inform me whether or not I am likely to experience any difficulty in starting a 5-6 h.p. twin if I removed pedals and fitted a Mabon clutch with starting handle? —W.H., Brighton.

If you have the clutch fitted, and this clutch is a good one, we should not recommend you to remove the pedals. You never know when you may have to use them, and starting from cold by running alongside is sometimes difficult unless everything is in order.

Single v. Twin-cylinder Machine.

I am intending purchasing a motor cycle in the near future, and should be much obliged if you would give me a general idea of (1) the advantages (if any) to be derived from a twin-cylinder over a single, and also (2) whether the upkeep in the tyres of a twin is greater than that of a single of the same power?—R. U. N., Cheshire.

The advantages of a twin-cylinder are greater flexibility, less noise, and greater ability to pick up speed when checked on a hill, also smoother running. The disadvantages are greater cost of upkeep as regards tyres and fuel, and slightly greater difficulty to keep machine in order. If you are a novice, we think a machine of not more than 3½ h.p. should suit you to begin with.

Gear, Electric Horn, and Lamp Queries.

(1.) What ratio of gear would you advise me to use on my 3½ h.p. machine, my weight being about eight stones, and that of the machine being about 150 lbs.? The present gear is 5¾ to 1. This, however, I find much too low for the level. (2.) I wish to use an electric buzzer in place of the ordinary bulb in conjunction with a dry cell as used for ignition purposes on motor cycles. Would this be perfectly satisfactory, and would it last a whole season without any attention? (3.) What kind of lamp (acetylene) do you recommend, self-contained or with separate generator? —L. 861.

(1.) We should suggest a gear of 4½ to 1. If you have an adjustable pulley you can vary the gear as desired. (2.) If you use an electric buzzer on your horn it will exhaust the dry cell very quickly. Try a 4-volt accumulator. (3.) Each system has its advantages. The self-contained generator has few pipes and orifices to become stopped up. A lamp with a separate generator, however, is considerably lighter, and does not strain the bracket to so great an extent.

Control by Variable Lift of Valve.

Kindly explain how the control of a 3 h.p. Fafnir engine is accomplished, the type which requires no throttle? Do these engines easily overheat as a consequence of this method of control? Can these engines be run at a slow speed? Are the present day engines of this make controlled in the same manner?—M.R.S.

This type of engine is controlled in two ways. The 3 h.p. 75 by 80 mm. type

Mr. Frederick Straight, Secretary of the Auto Cycle Union, on his new Triumph.

(automatic inlet valve) by varying the lift of the exhaust valve which prevents all the exhaust gases from escaping, so preventing a full charge being drawn in. The later type is controlled by a variable lift of the inlet valve, which, of course, has practically the same effect as a throttle. The exhaust control is fairly satisfactory, but liable to cause overheating. The inlet control method is better.

Magneto and Battery Ignition.

On my tricar I have a 6 h.p. twin J.A.P. engine and metal disc clutch with Bosch high tension magneto, D.A.V. type, gear driven, and I want to be able to start engine with the handle. At present I cannot get over compression quick enough with handle to enable magneto to spark. Would a plain coil and dry battery be best? Kindly give me a diagram of the wiring?—F.C.

Handle starting with magneto ignition is very uncertain on motor cycles unless handle is geared up as in Rex, Phœnix, and Roc machines. Fitting a supplementary ignition will cause a good deal of unnecessary complication. By far the best plan is to start the engine on the stand by the pedals, and then put the clutch in the neutral position, raise the stand, and start from a standstill by means of the clutch. As you have a Bosch magneto you would have to fit a separate contact breaker on the engine for battery ignition, which would not be an easy matter.

Reliability of Motor Cycles.

At present I know nothing of motor cycles, but should like to possess one. Kindly tell me if I purchased a motor bicycle of the best make how far I could expect it to run without requiring attention of any description beyond filling with petrol and oil and cleaning? I live in the country, and reliability is of the utmost importance. Of course, I do not include tyres.—B.E.W.

With ordinary luck you should cover at least 1,000 miles on a first-class motor bicycle before it requires attention beyond shortening the belt say twice. It would then be advisable to remove the cylinder to scrape away the carbon deposits. This, together with occasionally draining out the crankcase, grinding the exhaust valve, and cleaning the carburetter jet would be practically all the attention a good magneto-ignited motor bicycle requires for several thousand miles. The bearings of the wheels, of course, require occasional oiling like those of a pedal bicycle.

Sluggish Starting due to Adjustment of Carburetter.

I have a 2¾ h.p. low tension magneto (1905 Clyde) motor bicycle, and have a difficulty in starting same, that is if it has been left for an hour or so, and engine has got cold, it takes me four or five minutes hard pedalling on the stand before I can get it to start, and then I have to put petrol in top of cylinder. When once engine is warm it will start at one turn of the pedal. I am using Pratt's petrol and Moebius air-cooled lubricating oil, and the oil seems to make piston go stiff when cold.—N.W., Cambs.

Provided you inject paraffin or petrol to ease rings, and the engine then starts all right without much pedalling, it shows trouble is due to congealed oil. If it only starts with vigorous pedalling when piston is free it shows that the trouble is chiefly due to carburation, that is to say, you get too much air at the outset. This may be overcome by fitting a shutter over the bell mouth of the carburetter, so that the air may be altogether or partially excluded at the moment of starting. It must, however, be opened immediately afterwards. Always flood the carburetter before attempting to start.

Handle Starting and Carburetter Flooding.

I have had a Mabon clutch fitted to my 3½ h.p. Minerva, and sometimes handle starting is easy, and at other times is difficult. I have tried different positions of spark, throttle, and air, but this does not help me. When I lean the machine over towards the right, viz., the side on which is the jet, the petrol keeps dripping on to the floor. If machine is leant to the left or kept upright, this does not occur. I raised weight on needle valve about one-eighth of an inch, but it is just as bad.—G.F.N.

Small single-cylinder engines are usually hard to start with a handle on the engine-shaft, chiefly due to the lightness of the flywheel, and the fact that sufficient gas cannot be obtained until piston is moving at a fair speed. You may get some help in this direction by fitting a shutter over the air inlet of the carburetter, as suggested in *The Motor Cycle* of February 12th, page 121. There should be no leakage if the needle valve fits properly when the machine is standing upright. Of course, it will usually leak when machine is leaning out of a vertical line, because the action of float is impeded, *i.e.*, it touches walls of float chamber. The remedy is to shut the petrol tap.

Leakage through Joint of Cylinder Head.

I have a 2¾ h.p. Werner engine fitted with detachable head. Owing to the difficulty in making a joint after removing cylinder, and for other reasons, I want if possible to get the head and cylinder fixed together permanently. Is there any process by which this can be done? This engine jumps in frame fixing and cannot easily be made firmer. Would a stay from down tube to a plug at compression tap hole put too great a strain on the side rods of cylinder?—W.R., Dublin.

The simplest way to get over the difficulty would be to fit the head tightly on to the cylinder, fit a new copper and asbestos washer, and paint the joint with fish glue. Probably the safest place to stay the engine from would be one of the holding down bolts by which the separate combustion head is attached. The engine has a high compression and rather small flywheels, and for these reasons a certain amount of vibration will always be present. Fitting stays will only transfer the vibration to another point, and might cause breakage. If the attachment bolt holes in aluminium are worn have them drilled slightly larger and fit new bolts or a tubular sleeve over the bolts.

Competitors in the Glasgow M.C.C. Hill-climb at the Peesweep Hill, Paisley. The event was unfortunately marred by a severe rainstorm.

READERS' REPLIES.

Loose Pulleys cause a Clanking Sound.

I see by your issue of May 13th that "R.C." is troubled with a slight clanking sound. I was myself puzzled by the same thing on the 8th inst., and immediately dismantled the engine, but everything was all right. By chance I revolved the pulley a half turn, and the trouble revealed itself. The key which prevents the pulley revolving on its spindle had worn away the sides of the key-way, and had thus set up a peculiar clanking sound.—K. A. MacDonald

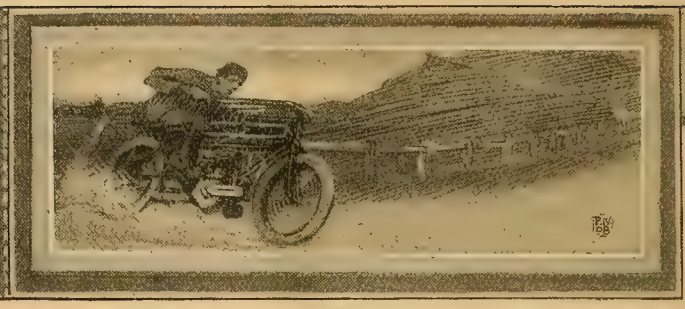
Non-sooting Plugs.

I noticed in a recent issue that "F.P.," Oakham, wanted a sparking plug for back cylinder of a four-cylinder F.N. A few weeks ago you described the Reliance plug, and I immediately got one, as I found the back cylinder of my four-cylinder F.N. flooded with oil, and I had to remove the plug and clean it every time I stopped before it would spark again. Since fitting the Reliance I have never required to touch the plug. The cylinder in which it is fitted is always first to start.—G. A. Gillies.

Re Petrol Supply Impeded.

"G.W.W." (May 13th) appears to have had the same trouble with his carburetter that I had with mine, also a B. and B. carburetter with Longuemare jet, as machine kept on stopping. It would slow down quite gradually. This occurred the same up-hill, on the level, or down hill, going fast or going slowly. The cause was carburetter flooding. I could see the petrol dripping every time the engine began to slow down. Like "G.W.W.," I only had to wait a minute or two, after which I could start again and run another few miles, when the same thing recurred. Towards the end of the day the trouble disappeared as mysteriously as it began in the first place. Evidently, whatever the cause, the trouble was entirely erratic, and not likely to be due to a badly fitting needle or incorrect level of petrol in the jet. This is correct, as a matter of fact. It seemed just possible that the needle had too much play, so a leather washer was put in the cap that covers the needle on the outside of the float chamber. One result of this is that the throttle certainly answers more readily, giving more control at slow speeds, and as yet I have had no more flooding. If "G.B.B." finds it is a case of carburetter flooding with him it is the simplest thing possible to try a leather washer in the cap. It would be interesting to hear whether it has the same effect in his case as in mine.—C.C.M.

CURRENT CHAT.



Special Features

THE A.C.U. OPEN HILL-CLIMB (Illustrated).

A FIVE-CYLINDERED ENGINE (Illustrated).

The Next Issue.

In consequence of the Whitsuntide Holidays the next issue of *The Motor Cycle* will be published on Thursday, June 11th, instead of Wednesday, June 10th. It will contain a fully illustrated description of the M.C.C. London-Edinburgh run, and descriptions and illustrations of other Whitsuntide events.

A Disappointment.

The Naval motor cycle race at the Whitsuntide meeting of the Brooklands A.R.C. has been cancelled for reasons stated on page 431 of this issue, and further races for motor cycles will not be promoted for the present. Every motor cyclist will regret this strange decision, but we are confident that no fair-minded person will admit that motor cycles make nearly as much noise as racing cars.

Advice regarding Police Traps.

We are always obliged to readers who send us news regarding police controls. We should, however, be grateful if our informants would state the exact spot as nearly as possible, the nearest village, and the name of the county in which it is situated.

A Midland Meeting of Motor Cyclists.

The committee of the Birmingham M.C.C. are desirous of feeling the opinion of other Midland clubs on the subject of a general meet on the lines of the Richmond meet of Northern motor cyclists. Club secretaries are requested to write Mr. R. Vernon C. Brook, trials hon. sec., Eastgate, Green Hill Road, Moseley, as to whether they would be prepared to join in a meeting at, say, Stratford-on-Avon.

The Number of Motor Cycles in Madras.

A correspondent tells us there are about twenty-five motor cycles of all sorts at present in Madras. Over there, with the thermometer so high, motor cycling is regarded as one of the coolest pastimes.

Italian Volunteer Motor Cyclists.

Following the example set her by other European nations, Italy has placed a law on the statute books for creating a national corps of volunteer cyclists, motor cyclists, and motorists. The corps will be under the supervision of the Italian War Office.

A Summons Dismissed.

M. J. Lindsay, of Belfast, and C. Dean, of Chester, were recently summoned for riding motor cycles between Rhydtalog and Coed Talon at a speed exceeding twenty miles an hour. P.C. Hughes stated that the motor cyclists were travelling at thirty-six miles an hour. Cross-examined, he said, "I guessed at the speed, and it's a good guess, too." The officer made no attempt to time the defendants, and made no attempt to measure the road, consequently it is not surprising that the Bench dismissed the summons.

FUTURE EVENTS.

June 5-8—M.C.C. LONDON-EDINBURGH RUN and return for Schulte Cup Competition, and Special Cup for Motor Bicyclists.
" 8 (Whit-Monday)—St. Albans Motor Cycle Races.
" 8—Tunbridge Wells Motor Cycle Races.
" 13—Essex Beagles Ten Miles Motor Cycle Handicap at the Stadium.
" 20—Entries close for M.C.C. Team Competition at Daventry.
" 20—Barnsley Victoria C.C. (Motor Section) Open Hill-climb for Motor Cycles.
" 24—London United Tramways Five Miles Tourist Motor Cycle Handicap at the Stadium.
" 27—M.C.C. INTER-TEAM TRIALS for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective Competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., Birmingham M.C.C., Lincolnshire M.C.C., Liverpool M.C., North West London M.C.C., and Sheffield and Hallamshire M.C.C.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 6-7—A.C.F. Grand Prix Races for Cars.
" 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
" 14-15—M.C.U.I. (Ulster Centre) Open 400 Miles Reliability Contest.

"Tyred."

Motor Cycle Club for Nottingham.

A few weeks ago it was pointed out in these columns that Nottingham was one of the few large towns in England without a motor cycle club. An enthusiastic local rider noticed this paragraph, set to work, and a motor cycle club is now *un fait accompli.* See announcement in our Club News pages.

A Fatal Collision.

It is with deep regret that we have to record the death of Mr. Harold Clifton, a young Brighton solicitor, who, on the 23rd ult., was riding home at about 11.25 p.m. when he came into collision with a taxicab, and was thrown heavily from his machine. His skull was fractured and his arm broken, and despite every attention he died some hours later without regaining consciousness. Mr. Clifton was an ardent rider and originator of the Brighton and District M.C.C., and it is almost entirely due to his energy and keenness in motor cycling matters that the club has attained its present flourishing condition. His loss will be greatly felt in Brighton, where he was a universal favourite.

A Warning.

For frightening a horse and making "undue noise," one of the no silencer brigade was fined at Greenwich last week. This should be a warning to thoughtless motor cyclists who make use of cut-outs in towns and villages.

The Race Meeting at Hanover.

Rain prevented the holding of the motor cycle meeting arranged to take place at the fast Hanover track on the 24th ult., consequently the organisers found themselves compelled to postpone it until Sunday last, all the competitors having agreed to put in an appearance on that occasion.

A Tip for Anti-motor Policemen.

Policemen who are fond of spending their time looking after motorists might take the advice of James Evans, of Haverfordwest, who a few days ago was summoned for riding his bicycle along a footpath. Evans wrote to the Bench to say "he was sorry the police had nothing else to do but to crouch behind a gate and waylay cyclists." Evans added that the less said about the state of the road the better, and he desired to know whether bicycles or perambulators took up most room. A fine of 6d. was imposed!

Electric Timing over a Trap.

We are informed that the Rainford County Police are about to work a trap electrically on the Rainford Road, between St. Helens and Ormskirk.

Doctors' Opinions of Motor Cycles.

"Motor Cycling for Health," feature commenced in our spring number, was unavoidably crowded out last week, but the article will be continued in our next issue as space permits.

Measured Stretches of Road.

"CE 47" writes that the police are active between Hitchin, Baldock, and Royston. A number of Cambridge motor cyclists have been "had" there. There is also a trap at Fenstanton, on the road from Cambridge to Huntingdon. The police hide behind a hedge in the garden of a lodge on the right hand side going from Cambridge.

The M.C.C. Team Competition.

With eight clubs intending to make a bid for *The Motor Cycle* fifty guinea silver challenge cup on the 27th inst., an interesting competition is assured. We are glad several new clubs will be among the participants. Club secretaries are reminded that entries definitely close on Saturday, June 20th, a week prior to the date of the trials. The competition will start and finish at Daventry as last year, and the course is 100 miles in length.

A Good Ride.

One day last week Mr. Clifford Wilson, of the York County M.C.C., Leeds, riding a 3½ h.p. Triumph, made an attempt on the Leeds-London-Leeds record, previously held by Mr. F. Greenwood. A start was made from Leeds at 2 a.m., and keeping well ahead of his schedule time he went well until near Doncaster, when he was delayed for the opening of level crossing gates. The same delay took place at Newark. He was checked at Tuxford, Stamford, Buckden, Biggleswade, Welwyn, Hatfield, and Highgate. The previous best was beaten by 57m.

A Technical Offence.

At the Kings Heath Police Court last Wednesday J. E. Hall Wright, solicitor, Moseley, was summoned for driving a motor cycle with trailer attached, to the rear of which the number O 2853 was painted in black on a yellow cardboard. It was pointed out by the prosecution that the cardboard was not sufficiently durable to conform to the regulations. Had it been wet weather the question was, what would have become of the cardboard and the lettering. The regulations specified that the letters should be of white on a black plate—not a faint black on a dirty cardboard. Mr. Hall Wright contended that only a technical offence had been committed. He had been motor cycling since 1903, and had never been summoned before. Both his cycle numbers were white on a black ground. The Bench considered that a technical offence had been committed, and ordered defendant to pay the costs.

M.C.C. London-Edinburgh Run.

A record entry has been received for this year's London-Edinburgh twenty-four hours' run, which starts at ten on Friday evening, the list totalling 132. The machines are comprised of the following: 26 Triumph, 15 Vindec Special, 9 Rex, 4 Minerva, 4 Bat, 4 N.S.U., 3 Matchless, and 2 each

Miss Muriel Hind (5 h.p. Rex) paying toll to cross the Menai Bridge, in the Coventry M.C. Twelve Hours' Run to Holyhead.

Brown, Motosacoche, Quadrant, etc. The additional entries are given on page 446. Seventy-six machines have magnetos as compared with fifteen with accumulators, one machine has both, and two, dry batteries. Sixty-two machines have single cylinders, thirty-two two cylinders, and one four cylinders. It is whispered that two-wheelers are preparing for the Schulte Cup systematically. Members from Essex have practised the twenty miles an hour gait until they can ride on time with their hands in their pockets and their eyes shut. Now that the cars are debarred from using speedometers, the bicycles ought to have a fair sporting chance. Competitors should remember the two ten mile limits to which due regard must be paid, viz., one at Colsterworth (between Stamford and Grantham) and one at Retford. Mr. S. H. Fry, in sending us the entries, asks, "What will it cost the Motor Cycling Club if all the 132 entrants get through and claim a gold medal?"

To London-Edinburgh Competitors.

Mr. R. W. Moore, of Stamford, advises us that fresh stone is being laid on the road 100 yards north of Casterton. London-Edinburgh competitors should make a mental note.

Start of the London-Edinburgh Run.

The first of the motor bicyclists will be started by Mr. S. F. Edge at 10 o'clock on Friday evening next, near the Old Gatehouse at the top of Highgate Hill. The remainder of the competitors will be despatched at intervals of thirty seconds. The motor bicyclists number 97.

Another Birmingham Race Meeting.

Owing to the great success attending the *Sport and Play* Cycle and Motor Cycle Tournament at Aston on the 23rd ult., the promoters have decided to hold another big meeting with an even more attractive programme on Saturday, July 4th.

The Sutton Bank Hill-climb.

The really wonderful success of Rex machines at the A.C.U. open hill-climb last Saturday cannot be overlooked. In three classes they were first, and also obtained places. Contrary to some people's expectations, the winning machines made very light work indeed of the 1 in 4 gradient.

Winner of the Rolls Cup.

The winner of the Rolls Cup, presented by the Hon. C. S. Rolls to the Cambridge University M.C.C., was decided on a formula which included the marks gained in a hill-climbing competition on Sharpenhoe Hill, see page 447, and a consumption and reliability trial on May 23rd, is E. B. Dickson, 5 h.p. Vindec Special. The complete results will be published next week.

Speed Trials at Portmarnock.

The M.C.U.I. (Dublin Centre) held some motor cycle speed trials at Portmarnock beach on Saturday last. The results were as follows: Two miles members' handicap, out and home course, fifty yards pedalling allowed at the start, and fifty yards at the turning point.—1, C. E. Murphy, 3½ h.p. Triumph (84 by 86 mm.), 25s.; 2, S. Findlater, 3½ h.p. Jap (85 by 76 mm.), 30s.; 3, P. Hurse, Peugeot (75 by 75 mm.), 60s. Winner's time, 3m. 30⅗s. Twenty miles open handicap, pedalling permitted (needless to say it was not indulged in except at the turning points).—1, S. Findlater, 3½ h.p. J.A.P., 36m. 29⅗s.; 2, C. E. Murphy, 3½ h.p. Triumph, 36m. 34s.; 3, B. Dunphy, 85 by 85 mm. J.A.P., 37m.; 4, C. B. Franklin, 85 by 85 mm. J.A.P., 40m.

Inter-club meet of the Hull A.C.C. and Leeds M.C.C. at Pocklington, East Yorkshire, on the 24th ult.

THE A.C.U. Open hill climb

THE A.C.U. annual hill-climb held this year in conjunction with the Newcastle and District Motor Cycle Club took place on Saturday last in glorious weather. The event, which had been in everybody's mind since the holding of it was first announced, was a great success and attracted a crowd of enthusiastic spectators. The fact that the competition brought together the Northern, Southern, and Midland men did much to promote good feeling in every direction, and the officials of the A.C.U., the Newcastle and District, the Scarborough and District, and the Hull Motor Cycle Clubs all worked together with a will. The police did excellent work, but for both them and the numerous marshals the crowd proved rather too much. They did all they could and worked conscientiously and well, but the people seemed to be incapable of realising the danger of remaining in the middle of the road or on the wrong side of the dangerous corner. The hill has already been described and illustrated in *The Motor Cycle* (see issues May 13th and 27th), but a few further remarks about it may be desirable. The shape of the course, especially near and at the corner, is like—but, of course, much worse than—Fish Hill, Broadway, near Evesham. The gradient on the trough is terrible (1 in 3.96), but the men had a fair chance at this, the chief difficulty being to pick up speed after negotiating the corner (1 in 6.10). The condition of the road as regards surface has in no way been exaggerated by our contributor, Mr. B. H. Davies. It is fairly firm, but full of holes, due to rain washing away the binding material of the road.

The Weighing in.

Most of the morning was spent by the officials in weighing the machines and riders, and by the latter in practising on the hill. The weighing was in charge of Messrs. E. Hawkins, L. Bates, and H. G. Cove, who were kept extremely busy. Mr. E. A. Greathed, who marshalled the men at the start, did excellent work, and got the first man smartly off the mark punctually at 2 p.m., the advertised time. Mr. F. Straight took the time at the foot of the hill, and Mr. A. G. Reynolds at the summit.

In Class I. (for lightweight machines) there was only one competitor, R. G. Bell (2 h.p. Moto-Rêve), the other, G. L. Fletcher, having been run into by a motor cyclist, who was taking no part in the competition, during a practice spin. Bell travelled well till he got to the corner, which is about halfway up the course, and then had to dismount.

In Class II. (for machines with engines not exceeding 82 mm. bore, minimum weight of rider 154 lbs.), R. M. Brice (3½ h.p. Brown) made fastest time, 0; and F. Scriven (3½ h.p. Rex) came next, 3⅖s. slower. Of the rest, E. S. Myers (3½ h.p. Triumph) fell at the corner, H. Newey (3½ h.p. L.M.C.) dismounted about forty yards from the top, and S. W. Carty (3½ h.p. N.S.U.) fell at the corner.

In Class III. (for machines with engines not exceeding 85 mm. bore, minimum weight of rider 154 lbs.) J. Marshall (3½ h.p. Triumph) made the fastest time, 0; Brice came second, 3⅖s. slower; McMinnies (3½ h.p. Triumph), 16⅕s.; and the rest as follows: G. Lee Evans (3½ h.p. Rex), 23⅕s.; W. E. Grange (3½ h.p. Triumph), 35s.; and Captain Sir R. K. Arbuthnot, Bart., 51⅗s. Grange dismounted near the summit. Newsome (3½ h.p. Triumph) lost some ballast on his first ascent, then had another try and did likewise, and so was disqualified. Newey again dismounted near the finish. The following men took the difficult corner in splendid form: Marshall, Brice, and Sir R. K. Arbuthnot.

Class IV. (for twin-cylinder machines not exceeding 76 mm. bore in each cylinder, minimum weight of rider 154 lbs.).—Godfrey (5 h.p. Rex) again proved a winner, 0 (It was a field day for Rex machines); F. Applebee, jun. (5 h.p. Rex), 4⅖s. slower; F. Applebee, sen. (5 h.p. Rex), 18s.; J. Scriven (5 h.p. Rex), 18⅕s.; W. H. Wells (5 h.p. Vindec), 19⅕s.; J. F. Mallett (6 h.p. N.S.U.), 28s.; and G. Raper (6 h.p. N.S.U.), 36⅘s. Godfrey rode with great skill and daring, and was heartily applauded. Scriven made two ascents, as on the first occasion he took the wrong road and did not pass the timekeeper. Wells was a great favourite, and though he drove steadily round the corner he made an excellent ascent. Mallett, though a heavy rider, also did well.

Class V. (for machines with twin-cylinder engines not exceeding 85 mm. bore in each cylinder), minimum weight of rider 154 lbs.—Godfrey again carried off the honours, 0; and Applebee, jun., was again next in order, being 9⅕s. slower, while the rest figured as follows: F. Scriven, 15⅗s; W. H. Wells, 21⅕s.; J. F. Mallett, 24⅕s.

Class VI. (open to entrants in all the above classes).—Godfrey and his twin Rex for the third time proved to be invincible 0, and Applebee, jun., also on a twin Rex, was again second, being only 2⅕s. behind him, while the following differences in seconds elapsed

The A.C.U. Open Hill-climb.

between the rest: J. Marshall (3½ h.p. Triumph), 5⅗s.; T. H. Tessier (6-7 h.p. Bat), 5⅘s.; W. H. Wells (5 h.p. Vindec), 10⅗s.; F. Scriven (5 h.p. Rex), 11s.; W. J. Newsome (3½ h.p. Triumph), 14⅗s.; F. Applebee, sen. (5 h.p. Rex), 19⅘s.; W. G. McMinnies (3½ h.p. Triumph), 20⅗s.; G. Lee Evans (3½ h.p. Rex), 24s. Of the less fortunate ones, Myers (3½ h.p. Triumph) failed near the finish, and McMinnies came a cropper at the corner, while Marshall, Newsome, and Lee Evans were much applauded for their excellent riding.

Class VII. was confined to machines fitted with change speed gears. The competitors were drawn up on a gradient of about 1 in 18 to 1 in 20, and had this class were as follows: G. Raper (6 h.p. N.S.U., N.S.U. gear) 0, though he made a rather bad start; C. A. Palmer (5 h.p. Roc, Roc gear), 31s.; W. Milnes (3½ h.p. Phelon and Moore), 41s.; W. Newman (4 h.p. Roc Roc gear), 1m. 1⅗s.; F. W. Barnes (3½ h.p. Zenette, Gradua gear), 1m. 34⅕s.; the Scott stopped at the corner, and then restarted, 1m. 4⅖s.

The passenger class was only represented by two competitors, of whom only one, R. Benson-Smith (6 h.p. N.S.U. tricar, with Nala gear and belt drive), made a successful ascent; time, 3m. 54⅖s.

Just as the last named competitor started a terrific thunderstorm came on, and the rain fell in torrents. Everyone agreed that the hill-climb was the most successful which the A.C.U. has ever held.

Scenes at the A.C.U. Open Hill-climb at Sutton Bank.

Weighing competitors and machines at the hill foot.
O. C. Godfrey making the fastest ascent of the day. He rode a 5 h.p. Rex.
Resting before the start of the competition.
A. Scott finishing in the variable gear class.

to start from the saddle by engaging the gear. These performances were most interesting, and served to show how comfortably a properly equipped modern motor bicycle may be started from standstill uphill without any physical exertion. All complied with the rule satisfactorily, but particularly good starts were made by C. A. Palmer (5 h.p. Roc, Roc gear), A. A. Scott (3½ h.p. twin-cylinder, water-cooled, chain-driven, two-stroke Scott, Scott gear—an interesting machine, of which we hope to hear more at an early date), W. Newman (4 h.p. Roc, Roc gear), and J. Stuart Shaw (5 h.p. Phänomen, Nala gear), who got away from the mark in excellent form. The results of

The following officials assisted in the organisation: Judges, Messrs. R. Todd, E. M. P. Boileau, H. G. Cove, and G. Todd. Chief marshals, Messrs. E. A. Greathed, T. Straker, and J. W. G. Brooker. Marshals, L. Rosenvinge, W. H. Outwin, and R. L. Atkinson (Newcastle and District M.C.C.), V. Butters, A. Willis, F. Boxhall, R. Alkester, and F. Green (Hull). Clerks of the scales, E. Hawkins and E. L. Bates (Newcastle). Stewards, Messrs. F. G. Robson, C. Pugh, T. S. Webster, J. W. F. Tranmer, and F. Pinkney (Scarborough). Valuable assistance was also rendered by Mr. S. W. Carty (hon. sec. the Newcastle and District Motor Cycle Club.)

CLUB NEWS.

Western District M.C. (London).

Members of the above club are reminded of the reliability run to Salisbury and back on June 14th for the silver cup given by the president. Intending competitors should send at once to the sports secretary, C. Gould, 10, High Road, Chiswick, for rules and regulations.

Lincolnshire M.C.C.

There was a very representative meet at the Shades, Spilsby, on Saturday, all districts being represented.

A hill-climb has been arranged for Thursday week, the 11th, in the private park at Syston, near Grantham, Sir John Thorold having kindly given permission. There must be no practising on the hill before the day.

To-night (Wednesday) the members meet at the Royal Oak, Newark, and to-morrow (Thursday) at Southwell, at the famous Saracen's Head, when Mr. J. Arthur Mettham, secretary of the Grantham Centre (an architect of repute), will conduct the members over the Cathedral.

On Monday the reliability trial over two routes of 125 miles each takes place, and great interest is aroused in the event.

Coventry M.C.

On Saturday last the above club held a twelve hours run from Coventry to Holyhead, when twenty-six members were sent off by Mr. H. W. Staner, the official starter, at 7 a.m., *viâ* Shrewsbury, Llangollen, and Menai Bridge. The following motor cyclists successfully completed the run within twelve hours, including stops for lunch and tea, and will be awarded certificates: Miss Muriel Hind (5 h.p. Rex), W. Grew (3½ h.p. Triumph), G. Smith (3½ h.p. Triumph), C. J. Hart (5 h.p. None), R. G. Thomas (3½ h.p. Brown), C. S. Burney (3½ h.p. De Havilland), T. W. Drayton (3½ h.p Triumph), C. W. Hathaway (3½ h.p. Triumph with sidecar), A. Wright (3½ h.p. Triumph), John V. Pugh (3½ h.p. Lloyd), A. B. Jepson (3½ h.p. Triumph), R. T. Weallans (2½ h.p. Rover), and A. M. Startin (5 h.p. Riley tricar). Harold Williamson (3½ h.p. Rex) experienced very hard luck with a punctured tyre quite early in the day, and although he changed the air tube he again met with tyre troubles further on. He reached Holyhead outside the schedule time. A medal and two prizes will be awarded, when the results have been calculated, to the competitors who adhered closest to a mean average speed of 19 m.p.h. Fine weather favoured the event, and everything passed off successfully. The majority of the competitors returned the following day by various routes. The thanks of the club are due to Mr. John V. Pugh, who kindly placed his Lanchester car and driver at the disposal of the officials; also to all the checkers and assistants and the timekeeper, Mr. E. J. Hardy.

Coventry M.C. Run to Holyhead. Mr. and Mrs. C. W. Hathaway (3½ h.p. two-speed Triumph with Millford sidecar) on the Isle of Anglesey.

Bradford M.C.C.

On the 24th ult. the long distance reliability trial for the N.S.U. cup was held. The route selected was Bradford to Keswick and back—a total distance of 192 miles. W. Milnes (the holder of the N.S.U. cup 1907-8) was the first starter and left the Central Garage at 8 a.m. prompt, the other competitors following at 1m. intervals. There were four surprise checks *en route*, and the competition eventually proved to be a victory for J. Marshall, who rode a 3½ h.p. Rex, he having lost the least number of marks of any competitor (52). Punctures were the greatest source of trouble to the competitors.

Motor Cycle Union of Ireland (Ulster Centre).

A reliability non-stop run in connection with this centre was held on the 23rd ult. to Ballycastle, a distance of sixty-five miles, and for the purpose of deciding the winner a hill-climb under sealed handicap took place from Glendun Bridge for three miles up the mountain, only those recording non-stop runs being eligible to take part in this part of the competition. A very satisfactory entry was received, and the roads being in good condition the run proved most enjoyable. The hill-climbing contest resulted as follows:

		Gross time.	Handicap.	Nett time.
		m. s.	m. s.	m. s.
1.	J. Stewart (3½ h.p. Triumph) ...	6 0⅖	scratch	6 0⅖
2.	C. Montgomery (3 h.p. Rover) ...	8 47	2 25	6 22
3.	S. J. M'Dowell (3 h.p. Triumph)	7 58⅖	1 30	6 28⅖
4.	T. Dickson (3½ h.p. Triumph) ...	6 30	scratch	6 30
5.	J. Kane (3½ h.p. Triumph) ...	7 9⅕	0 30	6 39⅕
6.	F. H. Maclean (3½ h.p. Triumph)	7 48⅕	0 30	7 18⅕
7.	J. M'Allen (3 h.p. Rover) ...	9 49	2 30	7 19
8.	T. T. Maclean (3½ h.p. Triumph)	8 24⅖	0 25	7 59⅖
9.	W. Wilson (2¾ h.p. Minerva) ...	8 4	scratch	8 4

Starter, Mr. J. S. Garrett. Timekeepers, Messrs. R. M'Lardy and Philip Patterson. Messrs. Chambers Motors, Ltd., kindly placed a car at the disposal of the committee.

Harlesden C. and M.C.C.

This club had an impromptu speed-judging contest on the 23rd ult. The event was over eight miles—four out and four back—the speed fixed being 16 m.p.h. The result was as follows:

1.	M. H. Millis (3½ h.p. Whitley)	29m. 46s.
2.	H. J. M. Hughes (3½ h.p. Brown) ...	30m. 29s.
3.	L. Holmes (3½ h.p. Minerva)	30m. 32s.
4.	E. W. Bishop (2¾ h.p. De Dion) ...	29m. 0s.
5.	H. Boyer (2¾ h.p. Bat)	32m. 10s.
6.	H. Lowe (4 h.p. twin Peugeot) ...	33m. 0s.

In addition to the speed-judging contest and slow race previously arranged, it has been decided to hold a twelve hours reliability trial. This event is down to take place on June 28th, and a medal will be given to each rider getting through in the prescribed time.

The hon. secretary, Mr. E. W. Bishop, of 25, Bolton Road, Harlesden, will be pleased to hear from any motor cyclist desirous of joining the club.

M.C.C. LONDON-EDINBURGH RUN.

In addition to the entries for the M.C.C. London to Edinburgh twenty-four hours run given on page 426 of our last issue, the following have since been received, bringing the total to 132:

*H. P. Beasley (5 h.p. Rex), *A. Sharp (4½ h.p. A.S.L.), *J. O. M. Dixon (3½ h.p. Vindec Special), P. C. Camparíole (3½ h.p. ———), G. Rowden (3½ h.p. Bat), W. H. Bishop (3½ h.p. Vindec Special), *C. E. Woodger (5 h.p. Eland), H. C. Harriott (3½ h.p. Triumph), H. Cowlin (3 h.p. Triumph), A. Jelks (3 h.p. Chase), *J. Winslow (5 h.p. Rex), P. E. Quick (3½ h.p. Triumph), J. H. Brooks (3 h.p. Lincoln Elk), S. H. Clay (4½ h.p. Minerva), *O. C. Godfrey (5 h.p. Rex), J. H. H. Robinson (6 h.p. N.S.U.), H. Childe (3½ h.p. Triumph), P. Janson (3½-4 h.p. Bat), *A. Manning Lomax (3½ h.p. Triumph), F. G. Smith (3½ h.p. Triumph), W. Adam (3½ h.p. Triumph), A. O. Holmes (5 h.p. Crypto), G. E. Purchase (3½ h.p. Triumph), Wm. Pratt (3½ h.p. Phelon and Moore), C. Gordon Watson (2¾ h.p. F.N.), and F. A. Hardy (6 h.p. Panhard tricar).

*Entrants for Schulte cup competition and special cup for motor bicyclists.

Club News.—

Walthamstow M.C.

The club held its first competition of the year on the 23rd ult. in the shape of a reliability trial from Woodford to Newport and back. Seven made non-stop runs on the outward journey, and on the return journey five finished to time. Winners: F. W. Applebee (5 h.p. Twin Rex), W. H. Applebee (3½ h.p. Rex Tricar), C. W. Lee (2¾ h.p. De Dion), A. H. White (car), and J. W. Percival (6-8 h.p. Fafnir Tricar). The Whitsun tour is to Great Yarmouth.

Newcastle and District M.C.C.

New forms of competition have always been a strong point with this club, and the latest consists of a series of team trials being run off on the Calcutta Cup principle, the interest in which is sustained over a period of a couple of months, till the finals prove the survival of the fittest. The preliminary ties are run off over a course of fifty miles, from Gosforth Wagonway to Newton-on-the-Moor and back. One mark is awarded for each mile or part of a mile covered by each competitor before he has a stop, at a maximum speed of 20 m.p.h. and not less than 15 m.p.h. As the teams are drawn against each other in pairs, the teams scoring the most marks in each ride go into the next round. Ten teams entered, and the first round has now been run off, with the following results:

RIDDEN TUESDAY, MAY 19TH, AT 6 P.M.

Mr. L. Austin's team beat Mr. H. M. C. Bell's team.

	Marks.		Marks.
L. Austin (3¾ N.S.U.)	50	H. M. C. Bell (4 N.S.U.)	50
W. Parker (3½ N.S.U)	50	J. Westmacott (4½ Minerva)	50
W. Dunn (3½ Dene)	50	J. N. Grey non-starter.	
S. Svendsen (4½ Minerva) non-starter.		I. Grey non-starter.	
	150		100

Mr. E. L. Bates's team beat Mr. R. L. Atkinson's team.

E. L. Bates (5½ N.S.U.)	50	R. L. Atkinson (3¾ N.S.U)	50
D. M. Mallett (3¾ N.S.U.)	50	W. P. Ward (3¾ N.S.U.)	50
E. B. Nicholson (3½ Hobart)	50	G. Thirlwell (5½ N.S.U.)	29
S. Hudson (3½ Hobart)	50		129
	200		

RIDDEN WEDNESDAY, MAY 20TH, AT 6 P.M.

Mr. W. Outwin's team beat Mr. J. F. Mallett's team.

W. Outwin (3½ Triumph)	50	J. F. Mallett (6 N.S.U)	50
A. Fenwick (5 Vindec)	50	R. B. Smith (6 N.S.U.)	50
R. Wilson (4 N.S.U.)	50	G. Raper (6 N.S.U.)	50
F. G. Wilson (2½ Quadrant)	50	B. Dodds (4 N.S.U.)	29
	200		179

Mr. L. Rosenvinge's team beat Mr. V. Corbett's team.

L. Rosenvinge (3¾ N.S.U)	50	V. Corbett (5½ N.S.U.)	2
B. Bradford (6 Dene)	50	J. Gilchrist (3 Kerry)	50
R. Embleton (3½ N.S.U.)	50	J. Garbutt (3½ Fafnir)	50
T. Thompson (3½ N.S.U.)	50	J. H. Thompson (3½ Fafnir)	50
	200		152

RIDDEN TUESDAY, MAY 26TH, AT 6 P.M.

Mr. A. D. Nicholson's team beat Mr. S. W. Carty's team.

A. D. Nicholson (3½ Triumph)	50	S. W. Carty (1¼ N.S.U.)	50
J. J. Hall (3 Quadrant)	50	G. Dryson (3½ Triumph)	50
T. W. Hall (3½ Quadrant)	50	R. Ellis (8 Minerva)	50
J. S. Tweddle (3¾ N.S.U.)	48	F. R. Jack (3 N.S.U.)	41
	198		191

As a consequence, the five teams mentioned in the left-hand column go into the next round, which must be run off before June 30th. Three teams will be left in the final, and each of these teams must ride against the other two; thus the team gaining the greatest aggregate number of marks in these two final runs will be declared the winner.

Mr. E. Hawkins, chairman of committee, acted as timekeeper and judge, and several members of the club kindly assisted as checkers and marshals on the route.

The club will meet at the Royal British Hotel, Edinburgh, on Sunday, the 7th inst.

An all-night reliability trial will be run from Barras Bridge, Newcastle, to Edinburgh and back, by the coast road, on Sunday, June 14th.

Cambridge University M.C.C.

The hill-climbing competition at Sharpenhoe for the Rolls and Moreing cups resulted as under mentioned. It should be noted that a reliability trial will also be held in order to further determine the winner of the Rolls cup:

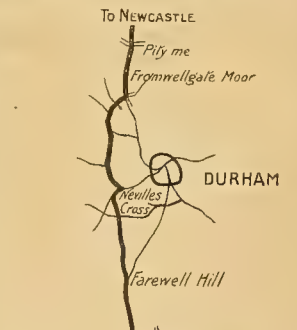
Name	Machine.	Bore and stroke.	Time.	Figure of merit.
C. H. Stephenson*	(3½ h.p. Triumph)	82×86	50s.	21.51
N. W. Hutchinson	(3½ h.p. Triumph)	82×86	51⅖s.	22.93
W. G. Ross	(3½ h.p. Triumph)	84×86	55⅗s.	23.07
E. D. Dickson	(5 h.p. Vindec)	75×76	47s.	23.91
J. M. Oakey	(5 h.p. Vindec)	75×76	47s.	24.64
E. H. Lees	(3½ h.p. Triumph)	84×86	52⅘s.	25.51
F. M. F. Pilkington	(3½ h.p. Triumph)	84×86	57⅖s.	25.76
C. L. Mere	(3½ h.p. Triumph)	84×86	54⅘s.	26.49
A. R. Yorke	(3½ h.p. Triumph)	82×86	61⅗s.	26.89
C. Wingate	(6-7 h.p. Bat)	76×95	40⅗s.	27.71
F. P. Dickson	(5 h.p. Vindec)	75×76	52⅗s.	27.89
A. R. Murrey	(3½ h.p. Triumph)	84×86	63s.	28.27
B. Milburn	(7-9 h.p. Bat)	85×95	39s.	31.27
E. H. Lees	(7-9 h.p. Peugeot)	80×98	35s.	31.54
C. H. Stephenson	(6-7 h.p. Bat)	76×95	50⅖s.	34.74
V. F. M. Oliver	(5½ h.p. G.B.)	75×80	55⅘s.	35.46
R. G. Heyn	(5½ h.p. Rex)	76×80	48s.	36.96

*Winner of the Moreing cup.

All the competitors machines were of 1907 or 1908 patterns.

The M.C.C. London to Edinburgh Run.

The committee of the M.C.C. having decided to avoid Durham on the way to Edinburgh, and so escape the tortuous streets of the former city, it is advisable to indicate to competitors the official route by means of a map, as, if they are not thoroughly conversant with the district, it is very easy to take the wrong turning. Mr. S. W. Carty, who has drawn the sketch map for *The Motor Cycle*, says: "Great care should be used in passing through Ferryhill and descending the steep hill out of same. The road then runs straight to Sunderland Bridge, where a very awkward and dangerous descent is met. This finishes on the bridge over the River Wear. After crossing the bridge, turn right, then straight up Farewell Hill, where bear left at fork. Easy run then for one mile, where keep straight on at cross roads, then a switchback run for nearly half a mile, when turn right. Sharp ascent for three hundred yards to Neville's Cross, then turn left. Easy road for one mile, when turn left and almost immediately right. Bear right at next fork, and straight on at cross roads. At Framwellgate Moor Inn turn sharp left, and straight on by North Road to Newcastle-on-Tyne. Competitors are advised to use great caution on this road, as vehicles often swing sharply across the road from byroads. It will be well patrolled with police, and indicating arrows will be fixed by the members of the Newcastle and District Motor Cycle Club."



IMPORTANT NOTICE.

On account of the Whitsuntide Holidays, the next issue of "The Motor Cycle" will be published on Thursday, June 11th, instead of Wednesday, June 10th.

Club News.—

Black Boy Motor and Athletic Club.

A club under the above name has just been formed, and intending members can have full particulars by applying to the hon. sec., M. Helsen, 27, Somerset Road, South Tottenham, N.

Nottingham and District M.C.C.

The above club was successfully inaugurated on Monday of last week, thirty-three gentlemen interested responding to the notice of the meeting. Mr. J. C. Scothern presided, supported by Mr. F. Straight, of the A.C.U. Mr. C. H. Spring, who at present occupies the position as hon. secretary to the N.C.U. (local centre), was elected hon. secretary, Mr. E. G. Young captain, and Messrs. Holmes and Brough vice-captains, with a committee of ten.

The Liverpool M.C.

The result of the hill-climb held on May 16th is as follows: Single-cylinder Class.—1, G. Hunter (3½ h.p. Fafnir); 2, H. Brookes (3½ h.p. Brown); 3, F. C. Jones (3½ h.p. Rex). Multi-cylinder Class.—1, G. Owens (5 h.p. Peugeot); 2, C. A. Kendall (5 h.p. Rex); 3, H. Weedon (5 h.p. Waverley-Peugeot). Passenger Class.—1, S. Granston (7 h.p. Waverley-Jap); 2, F. M. Lee (6 h.p. Waverley-Jap); 3, H. Weedon (5 h.p. Waverley-Peugeot).

Barnsley Victoria C.C. (Motor Section).

The motor cycle section has been presented with a challenge trophy, value twenty-five guineas, for annual open competition in hill-climbing. This valuable trophy will be held for a year by the rider who makes fastest time in the club's annual open hill-climb. It will become the outright property of the rider who wins it two years in succession or three years in all. The trophy, which has been presented by Mr. Henry Littlewood, of the Royal Hotel, Barnsley, will be known as the Littlewood trophy, and the first competition is fixed for June 20th, on Stainboro' Lowe, at 3 p.m. There will be three classes, and gold and silver medals will be given for the first and second fastest times in each class, the Littlewood trophy to be for the fastest time in any class. Entry forms and full particulars may be obtained of Bernard Siffken, Victoria Hotel, Barnsley.

Glasgow M.C.C.

The results of the hill-climbing contest on the 16th inst. compiled on formula $\frac{\text{Weight}}{\text{Capacity} \times \text{time} \times \text{gear}}$ are as follows:

CLASS A.—Single-cylinder engines not exceeding 80 × 80.

Competitor and machine.	Weight. lbs.	Gear.	Time slower than X fastest M.	Time slower than X fastest S.	Fig. of merit
1. James Roberts (3½ h.p. N.S.U.)	349¼	5.17	1	46	610

CLASS B.—Single-cylinder engines exceeding 80 × 80.

1. A. G. Bostock (3½ h.p. Triumph)	359½	4.55		36	902
2. R. A. McMillan (3½ h.p. Ormonde)	357	4.4		55	832
3. John Miller (3 h.p. Kelecom)	275½	4.5		38	802

Also competed: William Hood (3½ h.p. Triumph), P. W. Edmondson (3½ h.p. Rex), R. Barge (3½ h.p. Minerva), Glen Fulton (3¾ h.p. N.S.U.), J. S. Bryce (3½ h.p. Quadrant), S. Young (3½ h.p. Quadrant), and Wm. Hutchinson (3½ h.p. Minerva).

CLASS C.—Multi-cylinder engines.

1. E. L. Matthew (4½ h.p. F.N.)	352½	5.93		25	852
2. D. F. Bostock (6 h.p. N.S.U.)	411¼	4.		X	811
3. C. H. McMillan (4½ h.p. F.N.)	394½	5.93		59	796

Also competed: William Deans (4½ h.p. Minerva), George Hoggin (5 h.p. Vindec), H. H. Simpson (5 h.p. Vindec), and James Ross (4 h.p. Kerry).

Machines having 24in. wheels were debited with the difference of gear between 24in. and 26in. wheels. The winner in each class is awarded a gold medal.

The Eastern District M.C.

On the 7th inst. a Whitsun tour commences in Essex and Suffolk, and on the 14th the run is to Great Canfield.

The president, Mr. F. Leverton-Harris, M.P., has kindly promised a trophy for competition.

All communications in future are to be made to Mr. F. W. James, 2, Benworth Street, Harley Street, Bow, E., London, the new hon. sec.

Cardiff M.C.

Entries close to-morrow (Thursday) for the 200 miles run from Cardiff to Newport, Usk, Raglan, Monmouth, Whitchurch, Ross, Peterston, Hereford, *viâ* Dinmore Hill, Leominster, Ludlow, Craven Arms, to Church Stretton, and return by same routes. The distance must be covered within twelve hours, and competitors may choose their own day for the trial. The award is a club gold medal.

Leeds M.C.C. and Hull A.C.C.

About forty members of the above clubs attended the inter-club meet at Pocklingdon, East Yorkshire, on the 24th ult. A hill-climbing competition resulted in a win for A. B. Hughes (N.S.U.).

The trials secretary of the Leeds M.C.C. would be glad of assistance from motor cyclists and others who will help in

At the start of the Motor Cycle Union of Ireland (Ulster Centre) reliability run to Ballycastle.

checking the competitors at the different points along the route of their Leeds to Edinburgh run, which takes place on June 13th next. Offers of assistance should be sent to Mr. G. E. Tennant, trials secretary, Leeds M.C.C., Beechville, Ellers Grove, Roundhay Road, Leeds. Entries for the above event close to-day (Wednesday) at ten o'clock.

Dublin and District M.C.C.

The first competition organised by the club was held at the Long Hill, Sugar Loaf Mountain, Co. Wicklow, on May 23rd, under the most agreeable weather conditions. The number of spectators was considerable, and the hill was practically devoid of traffic and the surface good. The winner was decided on the formula $\frac{W}{C \times T \times G}$, and the results are as follows:

Rider and machine.	Position on formula.	Time above fastest man as zero.
R. H. Taaffe (3½ h.p. Triumph) ...	1	X
F. J. Walker (5 h.p. Rex) ...	7	0m. 21s.
J. Browne (3½ h.p. Triumph) ...	5	0m. 25⅕s.
W. H. Mowlds (3 h.p. Royal Roebuck) ...	3	0m. 38⅗s.
M. J. Chambers (2 h.p. Minerva) ...	2	0m. 51s.
H. Molloy (2¾ h.p. F.N.)	4	1m. 12⅘s.
J. Healy (3½ h.p. Rex)	6	2m. 48⅕s.
V. A. Barton (3½ h.p. Rex)	8	3m. 49⅖s.

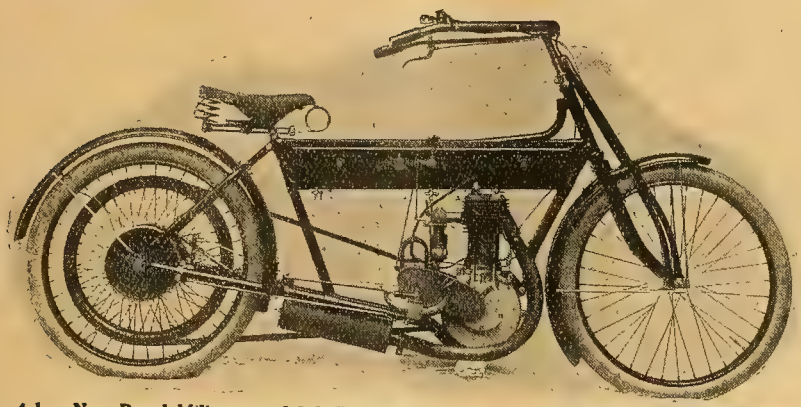
Dr. White was starter, and Mr. J. Keating timekeeper.

Club Hon. Secretaries, Reporting Hon. Secretaries, Press Photographers, and others would greatly facilitate the publication of news items and illustrations if they would make use of the special red envelopes which have been provided for the transmission of news and photographs posted on Saturdays. These special envelopes can be obtained on application to the Editor, "The Motor Cycle," Coventry. Reports should be as terse as possible.

THE

ROC

"The car on two wheels" built for comfort.



4 h.p. New Royal Military model, ball bearing engine, with Roc Clutch, hand starting, and Roc speed gear, 48 guineas.

QUICK DELIVERIES OF ABOVE STANDARD MODEL.

NOTE.—The ROC with live axle is the key to the future of motor cycles. NOTE also the Duplex tanks, the Duplex frame, the comfortable low riding position, the efficient silencer—the car like design.

Telephone—5712.
Telegrams—
"Roc, Birmingham."

A. W. WALL, LIMITED,
ROC MOTOR CYCLE WORKS,
Aston Road and Dartmouth Street. BIRMINGHAM.

Illustrated booklet describes these machines.

You remember the result of that fellow's front tyre puncturing, don't you?

You have to be told it's not air.

Tyre bills reduced to a minimum.

Touring pleasures doubled

Pumps and delays dispensed with.

"I am bound to say I should never have suspected that the tyres were other than pneumatics had I not been told."

—*Bystander*

Whilst in hospital he's having his tyres filled with

ELASTES

The best thing "[in]" tyres.

THE ELASTES CO., LTD.,
79-80, York Street,
WESTMINSTER, LONDON, S.W.

Telegrams: "Elastesque, London." **Obtainable at all Dunlop Depots.** Telephone 2173 Victoria.

AT LAST!!!

A Perfect Non-skid.

Correct in Theory.

Perfect in Practice.

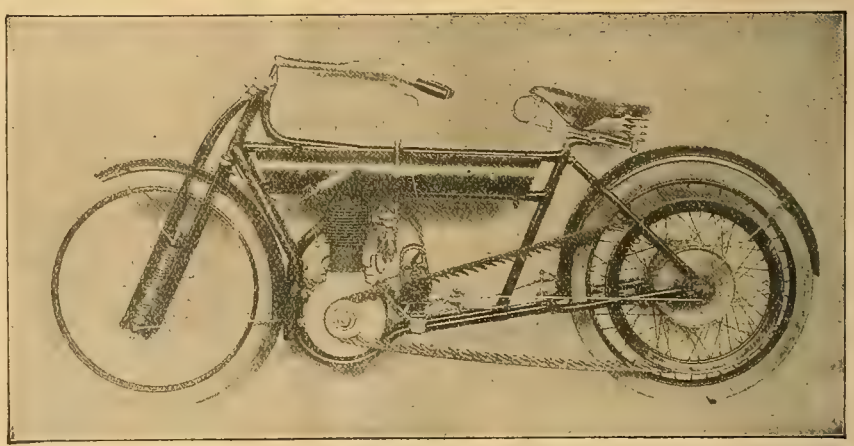
MADE IN BEADED EDGE IN
1¾in., 2in., 2¼in., and 2½in.

Send for full particulars of our special offer to readers of "The Motor Cycle."

COVENTRY RUBBER CO., COVENTRY.

THE WARWICK (Car Style) MOTOR CYCLE

is the IDEAL MACHINE **for Sidecar work.** With the Internal Expansion Clutch (Roc licensed) and TWO SPEED GEAR there is **no difficulty in starting** under any circumstances. The long low frame and spring forks ensure the completest comfort. No hill is too steep to negotiate with passenger; the 4 h.p. BALL BEARING ENGINE and Two-speed Gear are equal to all demands. LIVE BACK AXLE, HAND STARTING, SIMMS-BOSCH H.T. MAGNETO, HEAVY DUNLOP or CLINCHER TYRES.



DELIVERY FROM STOCK.

PRICE 45 GUINEAS. **SECOND-HAND MACHINES (any make) TAKEN IN EXCHANGE.**

EXISTING MACHINES FITTED WITH CLUTCH AND TWO-SPEED GEAR.

Send for pamphlet, **"The Evolution of the Motor Cycle: Culminating in the Warwick."**

See advrts. of "PREMIER" SEARCHLIGHT, "PREMIER" TUBULAR STANDS AND CARRIERS, "PREMIER" ROAD CLEARER, "PREMIER" ACCUMULATORS, etc., in Supplement of this issue.

The PREMIER MOTOR CO., Ltd., Aston Rd. and Dartmouth St., BIRMINGHAM.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Gudgeon Pin Fastenings.

[3344.]—Like Messrs. B. H. Davies and W. Merritt, I also have had the pleasure (?) of paying for a new piston which was smashed by an exhaust valve head. Possibly others may be found who have had a similar experience, but I hope Mr. J. Hayton's scepticism will not be removed by a practical demonstration on his own machine. One could hardly wish one's worst enemy that misfortune.

P 2870.

Ordering Spares by Wire.

[3345.]—There are two sides to most questions, Mr. Editor. Does payment with order invariably secure prompt attention? I fear not. Much as those motor cyclists who forget to pay *after* order has been completed must be condemned, what of those firms who receive payment with order and then leisurely take their time to despatch a part urgently required? I speak from experience. ALEXANDER ROGER.

[3346.]—The leaderette under the above heading certainly deals with a question which we see with pleasure put before the public. Every day we receive numbers of telegrams for spare parts, and not in one instance in twenty does a remittance accompany the wire. We are among those firms who will soon be reluctantly compelled to insist upon payment before despatch of the parts required, which will naturally mean much inconvenience to customers, our reason being, of course, the one mentioned in the leaderette. If customers when purchasing their mounts would only leave a small deposit for spare parts, the difficulty would be entirely solved, and we hope that your readers will recognise the good sense of your remarks. THE MOTO-REVE CO.

[3347.]—*Re* the leaderette under the above heading. In compliance with the request of many customers, we have opened accounts with persons for small spares for immediate delivery of same.

We may add that the most we can accept is £2, and we allow on all deposits 5% per annum, and execute orders from the amount by wire or letter immediately.

We have sent out several small articles, amounting in some cases to perhaps 10s. or 15s., to oblige our customers, and, in some cases, have never received remittances, therefore we have been obliged to adopt this method in order to despatch goods immediately upon receipt of letter or wire.

MAUDE'S MOTOR MART.

Behaviour of Rubber Belts in Wet Weather.

[3348.]—*Re* "Ixion's" comment in the last issue of *The Motor Cycle* anent the slipping of rubber belts in wet weather. Last winter I fitted a certain ⅞in. canvas and rubber belt to my tricar, and though it had to contend with all sorts of vile samples of this climate—rain and snow—that belt never showed the slightest inclination to slip except when very slack. This belt lasted over 1,000 miles.

The next one of the same make pulled well enough until the least wet was encountered, when the free-wheel business would begin, and all one could do was to watch the belt race through the pulley, progress being out of the question. One day I took off the belt and reversed it, when, behold! it held like a vice through two whole days of pouring rain. But that belt came to an untimely end right there; the rubber skinned off in all directions, leaving the fabric bare. I ran about 400 miles with that belt. Since that time I have had pulley skimmed out, and both pulley and belt rim are now of perfectly correct angle. Being unable to get a leather belt at short notice, I fitted my old friend the canvas and rubber again, feeling sure that with a correct pulley and new belt my troubles would cease; but alas for disappointed hopes! No sooner did I cross the freshly-watered tramlines, when coming home after a 134 miles run, than the belt commenced to slip as badly as ever. Comment is needless; mine, at the time, unprintable! AE 241.

Unattached Riders.

[3349.]—I was pleased to see that at last the A.C.U. is going to make some attempt to attach the non-club motor cyclists in this country, who number at least 40,000 men. I am afraid, however, that it is too late in the field. Both the M.U. and the C.T.C. have for some weeks been endeavouring to attach us to their organisations. If, however, the A.C.U. work hard and notify through your columns at once that it is prepared to take non-attached motor cyclists as associates at a fee of 5s. each, most of us who have been in the past associated with the N.C.U. and the C.T.C. (of ten and twenty years ago) will only be too glad to join an organisation which is in being to devote its attention entirely to the interests of motor cyclists as apart from pedal cyclists or motor car owners.

CHARLES S. PATTERSON, M.B., M.R.C.S.

[We regret to say that since the publication of the leaderette referred to by Dr. Patterson we learn that the A.C.U. Executive has gone no further than to refer this most important matter to the Relations Sub-committee. This sub-committee has no power to do more than make suggestions, and, from what we can hear, is not expected to deal with the question in a too energetic manner. In the meantime, local organisations are ready to accept unattached riders as associate members at 5s. per head; only 2s. of that fee goes to the A.C.U., so the local clubs ought soon to be on a profit-making basis.—ED.]

[3350.]—Since the A.C.U. has apparently no intention of catering direct for the unattached rider, the letter from Mr. Cove loses some of its points. At the same time, it is doubtful to see what facilities the average rider stands to gain by joining the A.C.U. over any local club. I should like to point out my idea of the advantages of direct membership outlined by Mr. Cove:

ADVANTAGES.	
Free copy of *R.A.C. Journal* (6d. to non-members).	Ninety-nine per cent. of the reading matter and advertisements appeal to car owners only.
Right to carry A.C.U. badge.	I have only seen one fitted, and with the jumble of initial letters I took it to be a personal monogram plate.
Use of club rooms.	Useless to country and provincial members.
Touring facilities.	The A.C.U. has nothing to offer in home touring facilities such as reduction in hotel bills. The motor cyclist objects to pay car tariff.
Free legal advice.	An affiliated association includes this in its 5s. scheme.

It appears to me as if the club or association that offers such facilities for a moderate subscription—say 5s.—will get the chief support from unattached riders. D 1617.

Dust Coats should Not be Too Long.

[3351.]—Having seen a great number of motor cyclists wearing *long* dust coats of light but strong material, I at last succumbed to the temptation and—to my sorrow—bought one. This article nearly caused a bad accident, as may be easily understood when I state that one side was suddenly gripped by the back wheel near the hub, and slowly but surely wound me off the machine, which incidentally was of 5 h.p., and undergoing a speed test. A word of warning to those who may be possessors of such garments, or who are anticipating the purchase of one, may be of use.

MISPLACED.

Courtesy at the Shows.

[3352.]—The subject of courtesy at the shows has lately figured largely in your Correspondence columns, and in a recent issue "Briton" numbers among the discourteous some of the firms advertising in your columns.

His remarks as applying to the majority are, I fear, only too true, but at last one of our English firms deserves, I think, to be mentioned as a brilliant exception. I refer to the Rex Motor Co. Some weeks ago I asked them to build me a special machine, offering my present mount in part payment. They agreed to put the work in hand at once. My specification included several variations from their standard model, and I even wrote them once or twice to make additions and alterations, but every letter of mine has been answered with such prompt attention and courtesy, and this during one of their busiest seasons, I feel my dealings with them have been a pleasure. H. A. Y. HEATHCOTE.

Sidecars.

[3353.]—With reference to "Hints and Tips for Motor Cyclists" now appearing in *The Motor Cycle*, I should be much obliged if you would kindly publish my experience, as I do not agree with one or two remarks on sidecars (No. 214) and side-slip (No. 215). I have not had or felt the slightest sign of a side-slip with my Castor wheel sidecar, and I have given it some severe trials, as I have been out in all weathers with light and also with heavy passengers, and have ridden on roads which slope down towards the kerb a good deal on days when roads were greasy. Mounting from the left side comes quite natural after one or two rides. The rider should see that the right-hand side pedal is at its lowest point before he pushes off, and directly he finds the machine is going all right he should step on to the pedal, and mount the saddle. If the road is fairly level, or better still a down gradient, one can mount and get comfortable before the machine is started, as one or two turns of the pedals will usually start the machine. My wife is over eleven and myself thirteen stones, and we get about a good deal and never have any trouble as to starting, etc. The machine is a 3½ h.p. Triumph, and the sidecar a Mills and Fulford. This combination takes us up almost all the hills in this district (Birmingham), and I seldom have to pedal to assist. I can climb up Gorcott and Meriden hills in Warwickshire without pedalling with a lightweight passenger, but with one over nine and a half stones I generally have to assist slightly.

W. C. SMART.

Air-cooling.

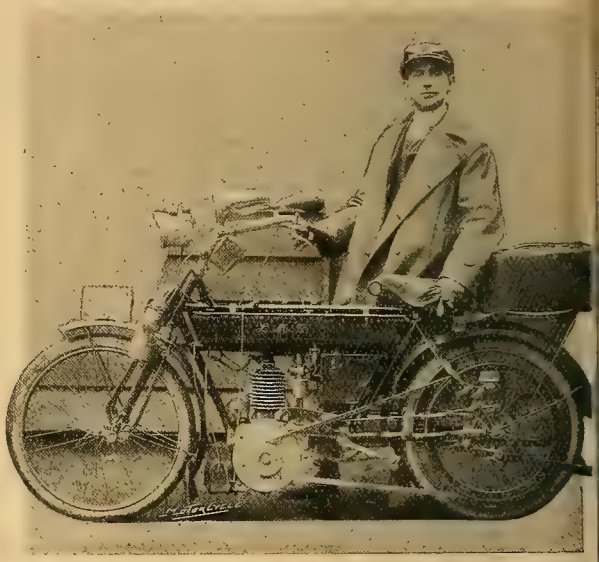
[3354.]—Your correspondent "Scotia" is quite right when he says that in the discussion under this head, and under the subject of overheating, the principal question of moment has been overlooked. I agree with him that the air-cooled engine is very inefficient indeed when compared with the water-cooled engine, according to any basis of comparison except those of weight and of cost.

To my mind the question is of absolutely prime importance when we consider the real advancement of the whole motor industry. Without the restrictions of weight and of cost anyone can turn out a thoroughly reliable and comfortable touring car, but when it comes to a question of producing a vehicle that shall be reliable, cheap, light, and efficient, the whole energy of the most experienced engineer must be brought to bear, and the most ideal production must be the true lightweight motor bicycle capable of producing the greatest horse-power per lb., whilst not forgetting the essentials of comfort, reliability, and so forth.

It is a perfectly well-known fact that for given cylinder dimensions the water-cooled engine gives far more power than the air-cooled, and the reasons are not far to seek. The degree of compression common enough in water-cooled engines is far above that which is possible for air-cooled engines. It is just because in a sense the air-cooled engine "overheats" that a low compression must be used in order to prevent pre-ignition. It is, further, just because the air-cooled engine "overheats" that it cannot take in the cylinder as great a weight of fuel and air per stroke as a water-cooled engine of the same dimensions.

It is well-known now that the temperature of the cylinder walls which will yield maximum efficiency is far below that of air-cooled engines as generally built and used.

I trust that I shall not be credited with any wish to decry the air-cooled engine in any other respect than may



Mr. Reginald Samson with his 3½ h.p. L.M.C. Motor Bicycle. This machine—fully equipped with luggage bag, two Rogers detachable air tubes in pouch on handlebar, tin of carbide strapped to front forks, full kit of tools and spares in metal tool case,—obtained a non-stop certificate in the last A.C.U. Quarterly Trials. Stripped of its touring equipment, the same machine made fastest time at the Birmingham M.C.C. hill climb at Rose Hill on May 2nd.

be done with the object of developing something better, fo the simplicity of its construction is, I believe, bound to kee it as high in the estimation of users as it now stands, but ther are ways in which improvement will be effected, and w must all wish to see them in practical form as soon a possible. The gap between inefficient air-cooling and ponde ous water-cooling is far too wide, and we badly want a com promise. How is this to be brought about? Many of u have ideas, and most recognise their cash value at thei true worth—*nil*. I have some hope that radiator system may be carried out whereby the heat of the cylinder will b transferred to the radiator proper through the medium c volatile liquids evaporated in the cylinder head, the vapour cooled in the separate radiator, and the condensed liqui falling back to the cylinder head. It is at any rate difficul to imagine anything much lighter and simpler as a com promise against water cooling by the usual cumbrous means There is no novelty in the system, and it is far more likely t be experimented upon by the makers of motor cycle engine than by the makers of car engines, who really do no object to an extra 20 lbs. weight so long as it saves ther the trouble of trying anything new.

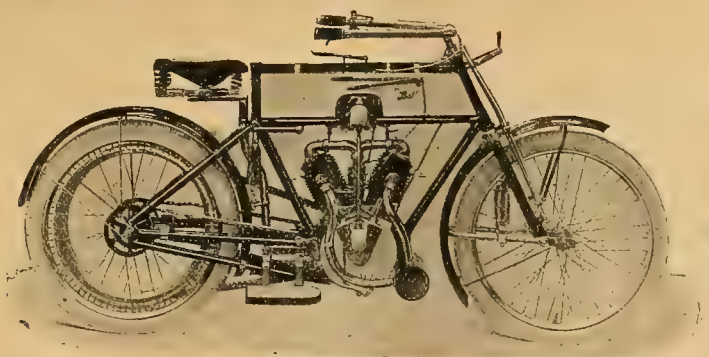
J. H. LESTER, M.Sc., F.I.C.

THE PRICE OF TRIUMPHS.

The Triumph Cycle Co. write us in reference to advertise ments that have appeared from time to time in this journa offering Triumph motor cycles at less than catalogue price They ask us to draw the attention of the public to the fac that a new Triumph motor bicycle embodying all the im provements of the year cannot be bought under the catalogu price, and a contract is entered into with all their agent not to undercut.

"My machine, I am glad to say, is going beautifully. I never knew how comfort and speed could be combined till I got this machine from you."

An owner:
D. G HIND,
Sussex.



"I must say I have nothing but praise for the machine. I have had six machines during the last few years, but have never had one to come up to this. I have just had a week round the Welsh mountains and have ridden them all with ease."

Another owner:
L. L. FARRINGTON,
Evesham.

JAP ENGINES. STILL THERE. **6-7 & 7-9 h.p.**

The "BAT" with the SPRING FRAME

and the **SPRING FORKS** still occupies its position **ON TOP**—the position to which it is admitted to be fully entitled, by reason of its **luxurious comfort**, the comfort of a Pullman, and its **reliability**, the reliability of a locomotive. Why not send for our Illustrated List, free on request.

The BAT Motor Manufacturing Co., Penge, London, S.E.

WINNERS
USE THE
"WATAWATA."

Speed tests call for a maximum of power, and for the right direction of that power. The Watawata is so constructed as to admit of no wastage, whilst its bull-dog tenacity brings out the highest capabilities of your engine. The winner of the Motor Cycle Handicap Plate at Brooklands on May 9th, used a Watawata, his machine being of only $2\frac{3}{4}$ h.p.

Write for lists, Dept. B,

O. & W. ORMEROD, LTD., ROCHDALE.

LONDON: W. B. BROOKE, 318, KING STREET, HAMMERSMITH.

Watawata

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post

All letters relating to advertisements must state distinctly under what heading they appeared, and date of issue.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Genuine Twin Rex, £22, guaranteed, spring forks, low built, goes like a flash; £16 given for 1906 Rex, £13 for 1905 Rex. £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex, in part payment.—Address below.

HALIFAX.—1908 Rex Featherweight, Duplex frame, magneto, splendid climber, new; 25 guineas; exchanges.

HALIFAX.—1908 3½ h.p. Magneto Tourist Rex, new; why pay fancy prices? 35 guineas; exchanges.

HALIFAX.—1908 Triumph, magneto, all the latest improvements; delivery now; £48; exchanges.

HALIFAX.—Very fine 2¾ h.p. De Dion, vertical engine, spray, new tyre and belt; £11 10s.

HALIFAX. — 45s. deposit and six monthly payments of 29s. 6d. secures 2¾ h.p. Excelsior, 3 h.p. Humber. 2¾ h.p. Minerva, 2¾ h.p. De Dion, 2¾ h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 3½ h.p. Rex, 2¾ h.p. Aurora, 2¾ h.p. Kerry, 3 h.p. M.M.C.; all guaranteed running order.

HALIFAX.—Twin-cylinder magneto Vindec Special, condition exceptional; cheap, £35; spring forks.

HALIFAX.—2¾ h.p. Phelon and Moore, two-speeds, 26 wheels, carry heavyweight; £27 10s.; any trial.

HALIFAX.—3 h.p. Humber, spray, long bars, low saddle, well cared for, good tyres; £10.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—15, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

"BETTER BE SURE THAN SORRY."

If you consult the Premier Motor Agency you are **ALWAYS SURE** of having a fine range of **NEW and SECOND-HAND MACHINES** to select from. You are sure, also, of prompt and courteous treatment.

We handle the

TRIUMPH, REX, BAT, N.S.U., VINDEC SPECIAL, MOTOSACOCHE, ROC, BROWN, etc.,

and can give prompt delivery.

THE WARWICK (Car Style) MOTOR CYCLE

is some years in front of ordinary Motor-cycle design. Let us send you our Pamphlet on "The Evolution of the Motor Cycle." We have Warwicks ready for delivery, and will take your old machine in part payment.

The following SECOND-HAND MACHINES are in perfect running order, ready for the road, and have the **Premier Certificate** of **Fitness:**

REX, 1908, 3½ h.p. de Luxe, 2-speed gear, magneto, accessories	£40 0
ROC, 1908 Military Model, clutch and 2-speed, spring forks	40 0
ROC, 5 h.p., magneto, Roc clutch	32 0
TRIUMPH, 1907, 3½ h.p., magneto	35 0
N.S.U. Twin, 6 h.p., magneto, 2-speed gear, splendid machine	35 0
REX DE LUXE, Roc clutch, soiled only	32 0
VINDEC SPECIAL, 3½ h.p., magneto, Truffault forks, adjustable pulley	30 0
VINDEC SPECIAL, 1906, 5 h.p., Truffault	27 0
REX DE LUXE, Roc clutch and gear, perfect order	26 0
ZENITH BICAR, 4 h.p., Whittle belt, free engine	22 0
MINERVA Twin, 4½ h.p., spring fork, absolutely perfect	22 0
TWIN REX, 5 h.p., cantilever seat, grand condition	19 10
N.S.U., 3½ h.p., magneto, fine condition	19 0
QUADRANT, 3½ h.p., spring forks, perfect	19 0
ROC, magneto, Roc clutch, spring fork, good condition	19 10
EXCELSIOR, 2¾ h.p.	8 0
F.N., 2¾ h.p., magneto	13 0
KERRY, 4½ h.p., Twin, 2-speed	19 0
QUADRANT, 3 h.p.	9 10
MINERVA, 2 h.p., spring forks, Brooo saddle, tyres like new	9 10
WHITLEY, 3½ h.p.	10 0
JAP, 2½ h.p.	6 0
MINERVA, 1½ h.p., spring fork, good condition	5 10
CHAMPION, 3 h.p., Trembler coil	6 0
REX TRICAR, faultless, running splendidly	23 0
STEVENS TRICAR, two speeds, free engine, wheel steering	33 0

Others constantly arriving. Complete list free on application.

PREMIER ACCUMULATORS.

Specially heavy plates—do not disintegrate.
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20 ,, ... 12/6 } application.

Send for pamphlets "On the Choice of a Motor Cycle," "Motor Cycles of 1908," "Everything for the Motor Cyclist."

SEE OUR OTHER ADVERTISEMENTS IN THIS ISSUE.

PREMIER MOTOR AGENCY,

Aston Road, BIRMINGHAM.

Telephone: 4310. Telegrams: "Primus," B'ham

MOTOR BICYCLES FOR SALE.

HALIFAX.—3½ h.p. Minerva, spray, girder forks, 26 by 2¼ Clincher A Won; begging at £16 10s.

HALIFAX.—5½ h.p. twin Rex, black finish, enamel and tyres equal new, spring forks; £23.

HALIFAX.—3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15.

HALIFAX.—3½ h.p. Magneto Rex, spring forks, Rex foot brake, cannot repeat; £18.

HALIFAX.—3¼ h.p. Rex, spray carburetter, 22in. frame, very powerful machine; £11 10s.

HALIFAX.—2 h.p. Beeston Humber, belt drive, spring forks, good climber, light and low; £8 17s. 6d.

HALIFAX.—2½ h.p. Calvert, vertical engine, spray, 26 wheels, tyres good; bargain, £7 9s.

HALIFAX.—3 h.p. Lloyds, very fine, Palmers, spray carburetter, footboards, trembler coil; £9 10s.

HALIFAX.—4 h.p. Antoine, special frame, Palmer tyres, really good mount; £16 10s.

HALIFAX.—Twin-cylinder Onaway, V engine, spray, specially low, suit short rider; £22 10s.; spring forks.

HALIFAX. — 4 h.p. Alcyon, fine 26 by 2½ tyres, twin, spring forks, N.S.U., two-speed gear, light and low; £23 10s.

HALIFAX.—3½ h.p. Simms, vertical engine, magneto ignition, easy starter, reliable; £17 10s.

HALIFAX.—2¾ h.p. Clyde, vertical engine, magneto ignition, splendid condition; £16 10s.

HALIFAX.—3½ h.p. F.N., special machine, long bars, very low, first-class order; £17 10s.

HALIFAX.—4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Fine 3½ h.p. Rex, long bars, low saddle, good climber; £11 10s., bargain.

HALIFAX. — 5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £27 10s.; bargain.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 10 miles non-stop; £13 10s.

HALIFAX.—3 h.p. Hobart, vertical, spray carburetter, trembler coil, splendid condition; £12 10s.

HALIFAX.—3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15.

HALIFAX.—3½ h.p. Excelsior, spray, trembler coil, Clincher tyres, good condition, suit sidecar; £16 10s.

HALIFAX.—Twin-cylinder Hadley, 4½ h.p., Calmon and Clinchers, 26 wheels, special finish; £17 10s.

HALIFAX.—6 h.p. twin Antoine, 26 by 2½ tyres, R.O.M. ignition, guaranteed running order; £22.

HALIFAX. — Lightweights, in going order, 25s. deposit and six monthly payments of 22s. 6d. secures 2 h.p. Quadrant, 1¾ h.p. Minerva, 2 h.p. Minerva, 2 h.p. Kelecom, 2 h.p. Quadrant, 2 h.p. Humber, 2 h.p. Universal, and 2 h.p. Princeps.

HALIFAX Motor Exchange. — Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

WHITSUN. Bargain.—Brand new Zenith Bicar, spring frame, motor bicycle de luxe, starts with a handle, same way as a car, 3¾ h.p. Fafnir engine, two-speed gear; list price £52 10s.; being shop-soiled, will accept £40 cash; exceptional opportunity.—Zenith Motors, Ltd., 119, Stroud Green Road, Finsbury Park.

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

SINGER Cycle, 2¾ h.p., for sale, good order; £8.—15, St. Mary's Road, Peckham, S.E.

3½ h.p. Ormonde, Antoine engine, complete; £13.—Holt, Central Garage, Heywood.

TRIUMPH, 1907, magneto, in first-class condition throughout; £31.—Parker, Melbourne, Derby.

TRIUMPHS, 1908 models in stock; best prices allowed for second-hand machines.—Parker, Melbourne, Derby.

3 h.p. Quadrant, in good running order; £12 12s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Brown, complete, excellent condition, long handles; trial; £15.—B. Kemsley, Epping.

2¾ h.p. Werner, new condition, fast, very reliable; any trial; £7 10s.—Mashbury Mill, Chelmsford.

3½ h.p. Peugeot, 80 by 98, torpedo tank, Chater low frame; £21.—Wauchope's, 9, Shoe Lane, E.C.

EXCELSIOR, 3½ h.p., guaranteed perfect; any trial; £13 13s.—59, Church Street, Stoke Newington.

1907 Triumph Motor Cycle, 3½ h.p., good condition, all on; £30.—H. C. Marston, Rock Ferry, Birkenhead.

2 h.p. F.N., in splendid condition; £10; also 1907 and 1908 magneto Triumphs.—Allan Barker, Stokesley.

2¾ h.p. F.N., vertical engine, worth immediate attention; £14 10s.—Wauchope's, 9, Shoe Lane, E.C.

2¾ h.p. Werner, grand little goer, very light and low; only £8; don't lose it!—479, Green Lanes, Harringay.

3½ h.p. Excelsior; £12; in good condition, Clincher tyres, 26 by 2.—Logsdon, 6, Nelson Road, Whitstable, Kent.

1¾ h.p. Lightweight Wolfe, condition absolutely as new; price £15.—Wauchope's, 9, Shoe Lane, E.C.

2½ h.p. J.A.P., inclined, Chater, Clincher and non-skid; £12 10s.—F. Durling, 69, Skinner Street, Gillingham, Kent.

6 h.p. Lurquin and Coudert, twin, very powerful; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

3¼ h.p., Ormonde frame, Kelecom engine, climb any hill; £10.—25, Charlotte Street, Caledonian Road, London.

4½ h.p. Motor Cycle, Longuemare carburetter, long wheelbase; £10; no offers.—84, Queen's Road, Peckham, London.

2¾ h.p. Minerva, splendid order, spring forks, low frame, lamp, horn; £17.—Moore, 27, Curzon Street, Long Eaton.

3½ h.p. Quadrant, fast, powerful, splendid condition, spares; £20, bargain.—Jones, 5, Tachbrook Road, Leamington.

2¾ h.p. Minerva, spring forks, low, fast, absolutely reliable; excellent condition; offers.—15, Atherton Road, Forest Gate.

4 h.p. Roc, magneto, Military Model, free engine, starting handle; £20.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

3¼ h.p. Light Low Rex, good condition; bargain, £12 5s., or exchange 2½ h.p. and cash.—28, Churchill Road, Hackney.

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London.

NEARLY New; £17 10s.; 3 h.p. Advance, complete with every refinement; expert examination invited.—339, Brixton Road, S.W.

2¾ h.p. Chase, Zedel engine, Chater-Lea frame, good running order; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

2½ h.p. Brown, good running order, tyres (Dunlop) nearly new; £10, or reasonable offer.—28, Howard Road, Walthamstow.

2¾ h.p. Minerva, vertical engine, M.O.V., a sterling machine; £14 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London

TRIUMPH, 1906, 3 h.p., lovely condition, new tyre with non-skid; any trial; owner bought 1908; 20 guineas.—111, Grove Lane, Camberwell.

2¾ h.p. Phœnix, with two-speed gear, excellent machine, good on hills, etc.; £17 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

KEEN AS MUSTARD

are our quotations. CASH, CREDIT, OR EXCHANGE.

£6 and a 3¾ h.p. Rex, or decent 3½ h.p. machine, secure a powerful TWIN REX, with spring forks, suitable for sidecarriage.

TWIN-CYLINDER MACHINES.

6 h.p. TWIN REX, black finish	£22	0
6 h.p. TWIN REX (1907), magneto	25	0
5½ h.p. REX DE LUXE, Roc clutch, magneto, twin tyres	27	10
5½ h.p. REX DE LUXE, shop-soiled, Roc clutch, magneto, black finish	35	0
4 h.p. TWIN N.S.U., magneto, two speeds	26	10
6 h.p. TWIN N.S.U., magneto, 2¾in. tyres	23	10
5½ h.p. TWIN VINDEC, magneto	29	10
5 h.p. TWIN BERCLEY (1907), like new	19	19
3½ h.p. TWIN WERNER, spring forks, light	13	13
5 h.p. TWIN KERRY, smart	19	19
6 h.p. TWIN ANTOINE, low built	18	18

SINGLE-CYLINDER MACHINES.

4 h.p. ROC (1907), magneto, non-skid	£28	10
4 h.p. ROC (1907), magneto, free engine	27	10
3½ h.p. TRIUMPH (1907), magneto	32	10
3½ h.p. N.S.U., magneto, low built	19	19
2¾ h.p. REX LIGHTWEIGHT (1908), nearly new	23	10
3½ h.p. REX (1906), magneto, four-cylinder F.N., magneto	19	19
4 h.p. ANTOINE, M.O.V., 26in. wheels	14	14
3½ h.p. REX, 26in. wheels, 20in. frame	11	11
3½ h.p. REX (1907), spring forks, 2¼in. tyres	16	16
3½ h.p. REX (1906), spring forks	15	15
3½ h.p. ARIEL, M.O.V., 26in. wheels	12	12
3 h.p. ARIEL, M.O.V., 26in. wheels	10	10
3 h.p. CLYDE, M.O.V., magneto, vertical	11	11
3 h.p. WHITELEY, spray, good tyres	8	10
3½ h.p. EXCELSIOR, very powerful	8	10

MACHINES WITH SIDECARS.

6 h.p. TWIN REX, spring forks, and new £8 8s. Millford sidecar	£25	10
5 h.p. TWIN KERRY, with new Millford sidecar, climbs anything	25	10

NEW ANTOINE SET,

comprising frame built up with wheels, belt rim fitted, handle-bar and seat-pillar, low built, 26in. wheels, 6 h.p. twin Antoine engine, mudguards, two cable brakes, ¾in. rubber belt. The lot **£14 14s.**, beautifully enamelled and plated.

LIGHTWEIGHTS.

3 h.p. BRADBURY	£10	2¾ h.p. MAGNETO	£10
3 h.p. HUMBER	10	3½ h.p. REX	10
3 h.p. CALVERT	9	2½ h.p. CENTAUR	8
2¾ h.p. MINERVA	9	2 h.p. MINERVA	8
2½ h.p. REX	6	1¾ h.p. MINERVA	6
1¾ h.p. QUADRANT	6	2¾ h.p. JAP	7
2½ h.p. BUCHET	8	2½ h.p. ARIEL	8

Push Cycles taken in part payment.

TRICARS.

4 h.p. HUMBER, W.C., Phelon and Moore two-speed gear, coach built	£18	10
4 h.p. TRENT, W.C., open frame, two speeds, wheel steering	18	10
4 h.p. DERRICK, coach built, free engine	16	16
4 h.p. REX, free engine, special engine	17	17
3½ h.p. ROYAL SOVEREIGN, light	9	10
5 h.p. QUADRANT, two speeds	22	10
3½ h.p. WHITE & POPPE M.O.V., Kent three-speed gear	16	16

MOTOR TRICYCLES.

2¾ h.p. BEESTON HUMBER, good tyres	£6	10
3½ h.p. AUTO MOTO, good order	4	15
Tricycle, less engine, two speeds, tyres	3	0

SIDE AND FORECARS.

STANDARD FORECAR, side stays	£5	0
PHŒNIX TRIMO	6	10
Pair tricar wheels with tyres	2	0
Forecar basket and springs, roomy	1	10
MILLFORD Castor Wheel	5	10
BRITISH STANDARD, rigid	3	10

ENGINES.

New 6 h.p. TWIN ANTOINE, complete	£8	5
Ditto, nearly new	7	10
6 h.p. AVON, W.C., up to date, M.O.V.	8	5
5 h.p. ANTOINE, M.O.V., nearly new, W.C.	8	5
2¾ h.p. NOBLE, M.O.V., vertical	3	5
1½ h.p. CLEMENT GARRARD, carburetter, tank, coil, acc., belt	3	0
1½ h.p. MINERVA, carburetter, tank, coil, acc., belt, ready for attaching	3	0
4 h.p. ANTOINE, M.O.V.	6	0
2¼ h.p. NOBLE	2	0
5 h.p. TWIN, incomplete	1	10

Small engines taken in exchange.
High-class motor cycles wanted for cash.

H. BOOTH,
CORONET WORKS, WADE STREET,
Telephone 198Y. **HALIFAX.**

MOTOR BICYCLES FOR SALE.

MOTOSACOCHE, new condition, spring forks, Michelin motor cycle tyres; great bargain, £20.—Alsford, Alma Road, Bournemouth.

3½ h.p. Minerva, fitted with Mabon free engine clutch, in excellent condition; price £17 10s.—Wauchope's, 9, Shoe Lane, E.C.

2¾ h.p. De Dion, Chater-Lea, good order, new tyres, Longuemare, long bars, stand, carrier, horn; £14.—77, Crescent Lane, Clapham Park.

3½ h.p. 1908 Second-hand Triumph, delivered January last, as new; £39 10s.—At Wauchope's, 9, Shoe Lane, Fleet Street, London.

3 h.p. Triumph, accumulator, splendid condition; exchange tricar, or sell £16 10s.—W., 18, Ferncliff Road, Sandringham Road, Dalston, London

3 h.p. Fafnir, Chater-Lea frame, non-skid on back wheel, M.O.V., in new condition; £19 15s.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

5½ h.p. Twin Rex, good condition, very little wear, splendid hill-climber, tyres perfect, numerous spares; bargain, £15.—Sawyer, Lyme Regis.

ANTOINE, 4 h.p., 23in. frame, Clincher tyres, spare leather non-skid, tools, etc.; accept £18, or best offer.—Etesian, 206, Bury New Road, Manchester.

5½ h.p. Twin-cylinder Rex de Luxe, spring back and front, magneto, free engine, and two speeds; £25.—Wauchope's, 9, Shoe Lane, E.C.

3½ h.p. N.S.U., two-speed gear, spare tyre, magneto ignition, condition good; £24, for quick sale.—Carnforth Cycle and Motor Co., Carnforth.

h.p. Vindec, 1907, Phelon and Moore two-speed, Grose band on back, splendid condition; £40, or nearest.—50, Council Street, Stanley, Durham.

1908 3½ h.p. Rex, tourist model, Bosch magneto, delivered fortnight ago, accessories; any trial; £30.—Box No .6, *The Motor Cycle* Offices, Coventry.

5 h.p. Twin Vindec Special, magneto, used for trial purposes, B. and B. carburetter; £25, sound bargain.—Wauchope's, 9, Shoe Lane, E.C.

1908 Minerva, magneto, Continental tyres, lamp, horn, run 650 miles, as new; going to sea; £30.—Pearson, Naval Motor Club, Wickham Street, Portsmouth.

2½ h.p. Triumph, Clincher tyres, Longuemare carburetter, everything in perfect condition; bargain, £13.—73, Church Street, Camberwell.

5 h.p. Peugeot, Chater, very low, Longuemare (H.), brass tank, two accumulators (P. and R.), P.U. tyres, all as new; £23.—Smith, 8, Sebert Road, Forest Gate.

5½ h.p. Magneto G.B., very low frame, fitted with a Zedel twin-cylinder engine, also a sidecar to go with it; price £23 10s.—Wauchope's, 9, Shoe Lane, E.C.

2 h.p. Light Fairy, twin-cylinder engine, chain and belt drive, in excellent condition, horizontal engine; £15 15s.—Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

F.N., 2¾ h.p., late 1907 machine, magneto, spring forks, perfect condition, only wants seeing, price £22; also trailer for sale, £2 10s.—Apply, G., 14, Errington Road, Paddington.

2½ h.p. Peugeot, in excellent condition, all accessories; £12 10s.; push bicycle taken if satisfactory; trial by appointment.—Calver, 20, Airedale Road, Wandsworth Common.

4 h.p. Twin-cylinder Werner, with stand, carrier, two spare valves, butt-ended inner tube, acetylene lamp, horn, Watawata belt, in excellent order.—Apply to T.N., 292, High Holborn.

5½ h.p. Rex de Luxe Model, 1907, magneto, twin wheel, perfect condition, not ridden 200 miles, guaranteed; £32 10s.—Apply, Arthur Pratt, Decorator, Tottenham Lane, Hornsey.

5 h.p. Twin Rex, two accumulators, trembler coil, Stanley-Dermatine belt, spring forks and seat, in fine running order; £22, or near offer.—Channon, 11, Oberstein Road, Clapham Junction.

MOTOR BICYCLES FOR SALE.

2¾ h.p. F.N., Palmer cord tyres; cheap.—A., 24, Fulham Road, London.

N.S.U., 3½ h.p., good condition; £18 10s.—W. H. Rudder, The Oaklands, Sutton Coldfield.

F.N. 1¾ h.p. Lightweight, magneto, spring forks; £22 10s.—Grace, 19, Tamworth Road, Croydon.

TRIUMPH, 2 h.p., in excellent running order; £12, or offers.—Farrer, Braithwaite, Keswick.

MINERVA, 3½ h.p., perfect condition; great sacrifice, about half price, £18; licensed.—D. Kennedy, Hamilton.

3 h.p. Clyde, magneto, handle-bar control, No. 6 Chater spring frame; £10. — 33, Killyon Road, Clapham, London.

2½ h.p. Kerry, in perfect condition, ready for the road, has had little wear; £13. —C.H.W., 28, Upper Clapton Road, N.E.

N.S.U., 6 h.p., magneto, spring forks, as new, spares; offers.—Marshall, 267, Slade Road, Gravelly Hill, Birmingham.

BARGAIN.—2¾ h.p. Triumph, light, low, very powerful; £10; no crock.—Seen 24, Broad Street, Golden Square, London, W.

2½ h.p. Bruneau, light low machine, Stanley belt, two accumulators; £12. — John Green, 6, Wynell Road, Forest Hill.

7 h.p. Twin Buchet, handle-bar control, B. and B. carburetter, very fast, low frame; price £23.—1, Lancaster Villas, Brighton.

ROC, Bosch magneto, 3½ h.p., perfect condition; must sell by Saturday; a great bargain, £16 10s.—164, Mitcham Lane, Streatham.

2¾ h.p., Chater-Lea No. 6 frame, new machine; low price for quick sale. — Ayden Bros., 17, Blackstock Road, Finsbury Park, N.

2 h.p. F.N., new Palmer cord, foot brake, perfect; £14; must sell; owner bought Rover car.—Holden, Park Street, Barnoldswick, Yorks.

3 h.p. Trafalgar, Marconi coil, A Won, reinforced Bates tread, in good going order; sacrifice £11 11s.—Sunderland, Sawtry, Peterborough.

5-6 h.p. Four-cylinder F.N., new 1908, low frame model, not yet unpacked; must be sold; £46.—Box No. 15. *The Motor Cycle* Offices, Coventry.

BENZ, 3½ h.p., capital order, two speeds and Crypto gear, to climb any hill; £12, offers, cash, or good motor bike.—Spence, tailor, Melksham.

3½ h.p. Excelsior, only ridden 1,000 miles, splendid condition, good tyres; seen and tried any time; £18.—E. Beard, Groundwell Road, Swindon.

SCOTLAND.—Four-cylinder F.N., 4½ h.p., Goodrich on back perfect condition, splendid hill-climber; £25, exchange. — Dale, Cleland, Lanarkshire.

1908 6 h.p. Twin Jap, magneto, Matchless built, Dunlops, Chater-Lea sidecar, not ridden 200 miles; £40.—Hodgson, 77, Mitcham Road, Tooting.

TRIUMPH, 3½ h.p., magneto, late 1907, little ridden, condition as new, several spares, lamp, etc.; £35, or nearest offer.—Fairfield, Northumberland Road, Leamington.

3½ h.p. Phanomen, magneto, Peter-Union (front) and Duco non-skid, very fine machine; only wants seeing; a bargain.—551, Seven Sisters Road, Tottenham.

3 h.p. Triumph Motor Cycle; any trial; also 5 h.p. Humber tricar; trial; also trailer, suitable for cycle or motor cycle.—Apply, 67, Wellington Street, Woolwich.

1906 2¾ h.p. Brown, absolutely perfect, brand new condition throughout, perfectly reliable; real bargain, £16.—Stanton, 86, Colvestone Crescent, Dalston, London.

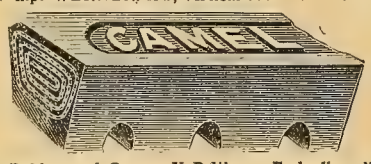
A BARGAIN. — 2¾ h.p. De Dion P., everything new bar engine, very fast, low built; first to see will buy; cash only, £15.—9, Batsford Road, St. John's, Deptford, S.E.

6 h.p. Roc, 1907, like new, thoroughly overhauled, enamelled; cost £64, sacrifice £30; accept lower power and cash, Triumph, De Dion preferred. — Brambledene, Eaton, Norwich.

NOW OR NEVER!!!

CASH, CREDIT, or EXCHANGE.

3½ h.p.	Four-cylinder F.N.	£23 10
5½ h.p.	REX DE LUXE, almost new	31 0
5½ h.p.	REX DE LUXE, good	29 0
5½ h.p.	REX DE LUXE, fine goer	26 0
3½ h.p.	REX, fine and good	13 0
4½ h.p.	Twin MINERVA, magneto, and Nala two speeds	32 0
2¾ h.p.	ZEDEL, long and low	14 0
2¾ h.p.	MINERVA, good condition	9 0
5½ h.p.	REX DE LUXE, twin tyres, clutch	26 0
3½ h.p.	REX, 22" frame	11 0
5 h.p.	Twin KERRY, very low	22 0
5½ h.p.	Twin REX, lovely goer	20 0
4 h.p.	ANTOINE, magneto, 1907	22 0
3½ h.p.	1906 REX, spring forks, etc.	15 0
3½ h.p.	1905 REX, spring forks, 26" wheels	13 0
3 h.p.	TRIUMPH, lovely goer	25 0
3½ h.p.	EXCELSIOR, smart	10 0
2¾ h.p.	R & P., 26" wheels, vertical	10 0
3½ h.p.	AUTO-MOTOR, spray, vertical	10 0
3 h.p.	NOBLE, spray, vertical	10 0
3 h.p.	REX, vertical	10 0
2¾ h.p.	HUMBER, spray, trembler	10 0
2 h.p.	QUADRANT, spray, smart	7 10
2½ h.p.	HUMBER, spray	9 0
2½ h.p.	REGAL, vertical, spray, 26" wheels	9 0
2½ h.p.	CYCLONE, spray, vertical	7 0
2 h.p.	MINERVA, M.O.V., 26" wheels	9 9
3 h.p.	MINERVA, M.O.V., vertical	12 10
2¾ h.p.	SINGER, magneto ignition	10 0
1¾ h.p.	MINERVA, good	5 10
2 h.p.	WERNER, low, vertical	8 10



Rubber and Canvas V Belting. Embodies all good points of other rubber belts without their drawbacks. "A distinct improvement."

NOTE.—The prices are between 33⅓% and 50% less than other makes. **Good** rubber belts need not be dear. Send cash for sample length on approval. ⅝" **9d.**, ¾" **1/-**, ⅞" **1/4**, 1" **1/8** per foot. Any length cut. Fasteners **6d.** each.

CAUTION.—Beware of infringements. Don't be "landed" in the Law Courts.

TRICARS.

5 h.p. REXETTE, two speeds **£29 0**
4½ h.p. REXETTE, water cooled **25 0**

SIDECARS.

Montgomery, 26" **£4 10** | Liberty, rigid .. **4 10**
Ariel, flexible .. **4 0** | Montgomery, flex. **4 10**
Forecar Attachment, extra good tyres, **£4 10s.**

ODD BARGAINS.

Spring Seat-pillar, **5/6**; Twin Coil, **10/-**; Lycett's B Toolbag, **6/-**; Lycett's L72 Saddle, **6/9**; Double-twist Horn, **4/8**, large size, **6/-**; Motor Cycle Back Brake, **6/-**; Rex Free-wheel, **4/-**; Low-tension Magneto, **30/-**; Osborne Free Engine Clutch, **27/6**; Whittle Belt, **8/6**.

NEW TYRES FOR OLD.

Genuine Continentals.	Cover.	Tube.	Genuine Continentals.	Cover.	Tube.
26 × 2	24/-	9/6	28 × 2	25/-	10/-
26 × 2¼	25/6	10/-	28 × 2¼	27/3	10/6
26 × 2½	29/6	11/-	28 × 2½	29/9	11/3

3/- allowed for old covers, 2/- for old tubes.
Traders and Agents send for discounts.

LYCETT'S "LIGHTNING" STANDS.

FIRM. RIGID. STRONG.
For 24", 26", or 28" wheels. **4/9** per pair.
Send for Price List of Accessories. Pounds saved.

WANTED.—Triumphs, Vindecs, N.S.U., or any good 1907 or 1908 Machines. Cash waiting.

E. FARRAR,

Albion Works, Square Road, HALIFAX.
Next door to Square Church.

ORDER NOW, POST FREE.

Exhaust Valves, "*Non-Corrosive*" *special nickel alloy*, **2/6. Piston Rings** (*three*), **2/3. Reboring and New Piston, 14/-. New Cylinder, 27/-. Variable Pulley, 8/6. Gears Cut. Rebushing. New Parts. Patent Fans. Spring Forks,** *front or rear.* **Resis, Silencers, Gears, Magnetos, Plugs, E.I.C. 4/1. E.K. 2/1. Our list will aid you if in trouble.**

THE MARCH MANUFACTURING CO., 68-72, CLIFFE ROAD, SHEFFIELD.

MOTOR BICYCLES FOR SALE.

6 h.p. Twin J.A.P., large flywheels, in low Chater-Lea frame, 26 by 2½ tyres, in excellent running order. — Seen at Wauchope's, 9, Shoe Lane, Fleet Street, London.

3½ h.p. De Dion, Longuemare, non-skid back, new front tyres, footboards, guaranteed good going order; £17, or best offer.—Baker, 79, Penge Road, South Norwood, London.

2¼ h.p. Humber Motor Cycle, spray, free engine, excellent condition, good climber; £8 10s., or exchange good twin engine and carburetter. — Patterson, Church Street, Baldock.

BAT, 2¾ h.p. De Dion, latest B. and B. carburetter, two Pfluger accumulators, Brooks B100 saddle, stand, lamp, tools, and spares; £13.—Hunter, 67 Woodside Green, South Norwood.

KERRY, 3½ h.p., splendid condition, Brown and Barlow carburetter, Powell and Hanmer gas lamp, all accessories; £13 10s.; appointment.—F., 2, Casella Road, New Cross, London.

3½ h.p. Minerva, Longuemare, Continental, footrests, tyres new condition, two accumulators, running order, £10; also 28 by 2 Clincher cover, new, 15s.—8, Leonard Place, Kensington, W.

3½ h.p. Brown, long handle-bars, footboards, spring forks, foot brake, large Brooks saddle on swan-neck pillar, running order; £12 10s.—Geo. Holzapfel, Rutland Lodge, Petersham.

4 h.p. Twin N.S.U., two-speed, magneto, 24 by 2½ tyres, spare butted tube, footboards, stand, lamp, tools, first-class condition, reliable; £29.—Garforth, Commercial Street, Brighouse.

ANTOINE 4 h.p. Motor Bicycle, latest pattern, quite new; an exceptional opportunity of securing a good new machine at second-hand price; £21 10s.—Crypto Co., 14, Mortimer Street, W.

3½ h.p. Minerva, 1907, magneto, spring forks, Palmer cords, not ridden 300 miles, whole machine as new, too fast for owner; £28.—A. Roberts, 291, Green Lanes, Finsbury Park, London, N.

2½-3 h.p. Noble, M.O.V., very handsome machine, low, fast, and reliable, wonderful hill-climber; £12 10s. (Noble for Lippets Hill in last week's *Motor Cycle*.—551, Seven Sisters Road, Tottenham.

A BARGAIN.—3½ h.p. 1907 Phelon and Moore, two speeds, free engine, a perfect machine, Clincher tyres, well cared for; nearest cheque to £35 gets it.—Walton, 79, Grange Road, West Hartlepool.

BRAND New L.M.C. 3½ h.p. Motor Cycle, not yet delivered from makers; cost 45 guineas, will sacrifice for £38, as I cannot take delivery.—Motor, 21, Laughton Road, Dinnington, Rotherham.

3 h.p. Humber, chain driven, requires slight repairs, bargain, £8; also 2 h.p. Brown, in perfect running order, with all accessories, £6; seen after 7 p.m.—A. Phillips, 6, North Common Road, Ealing.

VINDEC Special, 5 h.p., light tourist trophy model, in first-class condition and perfect running order, just overhauled by makers and ready for Whitsuntide; £35. — Owen Summers, 46, Cornhill, E.C.

CLEMENT-GARRARD, two-speed gear, lightweight, take 20 stone any Sussex hill, only run 1,000 miles; exchange for magneto, or sell £14.—Doctor, No. L2,368, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

REX, 3½ h.p., in splendid condition, just recently overhauled, fitted with footboards, powerful belt rim brake, Stanley-Dermatine belt, tyres in good order; £12.—Apply, 349, West End Lane, Hampstead.

3¼ h.p. Bat, genuine De Dion engine, spring frame, fitted with a Fit-all two-speed gear, this is a perfect touring machine, and will stop at nothing in hills; price £22 10s.—Wauchope's, 9, Shoe Lane, London, E.C.

3 h.p. Durkopp, 1907, low machine, long handle-bars, in splendid condition trembler coil, stand and carrier, separate; can be seen any time; absolute bargain, £10 10s.—25, Lower Richmond Road, Putney.

KERRY Motor Cycle, 5½ h.p., twin-cylinder, spring forks and seat-pillar, excellent running order, good reason for selling; £14 14s., or near offer; can be seen any time.—2 and 3, White Street, Moorgate Street Station E.C.

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

MAUDE'S.—All the undermentioned motor cycles are in guaranteed good running, and can be seen on the road at the address.

MAUDE'S. — Zenith Bicar, two speeds, handle starting, newly enamelled and done up by the makers. Now, ye godfathers, how's this at £30.

MAUDE'S.—Zenith Bicar, 4 h.p., free engine, new rear tyre; £21.

MAUDE'S.—Zenette, sprung frame, girder forks, free engine, 3 h.p.; £24.

MAUDE'S.—Rex twin, 1907 model, new 2¾in. Watawata, splendid condition; £22.

MAUDE'S.—6 h.p., N.S.U., 24in. wheels, accumulator ignition, perfect; £24.

MAUDE'S.—Rex, 1907 model, 3½ h.p., just been overhauled; £18.

MAUDE'S.—Rex, 3¼ h.p., 22in. frame, two-speed gear; £13.

MAUDE'S.—Ariel, 3 h.p., B. and B. carburetter, vertical, 26in. wheels, very good condition; £15.

MAUDE'S. — Minerva, 3½ h.p., vertical, M.O.V., spray carburetter; £17.

MAUDE'S.—Minerva, 3½ h.p., 26in. wheels, low built, winner of two hill-climbs, £18

MAUDE'S.—Minerva, 2¾ h.p., vertical, new tyres, saddle, silencer, and pedals, thoroughly overhauled and re-enamelled; £12.

MAUDE'S.—Clarendon, 3 h.p., vertical engine, spray, very good tyres; £11.

MAUDE'S.—F.N., 2¾ h.p., vertical, spray, 26in. wheels, Palmer tyres; £11.

MAUDE'S.—Rip, 3½ h.p., White and Poppe engine, spring forks, sprung frame, brand new and perfect; £15.

MAUDE'S. — 2¾ h.p. Minerva, 1906 model, 26in. wheels; £15.

MAUDE'S.—Rex, 50 guinea model, non-skid to rear, Palmer front; £10 10s.

MAUDE'S.—Bat, 3½ h.p., Bat engine, Longuemare spray, with sidecar; £28, without £23.

MAUDE'S.—Lloyds, 2 h.p., vertical engine, footrests, spray, 26in. wheels; a beauty, £12.

MAUDE'S. — Minerva, 3½ h.p., magneto, spring forks, low-built, 26in. wheels; £21.

MAUDE'S.—Rex, 3¾ h.p., 1906 model, good condition, standard; £15 15s.

MAUDE'S.—Rex, twin, 6 h.p., cantilever seat, 50 guinea model; £22.

MAUDE'S.—Zedel, 2 h.p., vertical engine, low built, 26in. wheels, as new; £11; to be recommended as a lightweight.

MAUDE'S.—Jap, Phœnix built, good tyres; £9.

MAUDE'S.—Rex, 26in. wheels, low built, spray carburetter, footboards; £14 14s.

MAUDE'S.—Noble, 26in. wheels, low built, spray carburetter; £12.

MAUDE'S.—Bayliss, 3½ h.p., very good tyres; £11.

MAUDE'S.—Fafnir, 3 h.p., vertical, lovely condition, 26in. wheels, and perfect; £14, a bargain.

MAUDE'S.—Humber, 2 h.p., trembler coil, chain drive, good running order; £9.

MAUDE'S.—Singer, 2 h.p., magneto, Singer carburetter; £8.

MAUDE'S.—45s. down and twenty-four weekly payments of 7s. 6d. secures 3½ h.p. Excelsior, 3 h.p. Rex, 2 h.p. Humber, 2¾ hp. Humber, 2½ h.p. Jap, or 2 h.p magneto Singer. Delivery upon first payment.

MAUDE'S Motor Mart, Powell Street, Halifax (behind the Victoria Hall) offer without doubt the very best bargains in motor cycles, all of which are guaranteed in good running order before despatch. Write us and let us have your requirements, and we will quote you best terms for exchange or cash. Nat. tel., 433.

A Startling Offer

If you wish for a motor cycle, and prefer trying a second-hand one first, we are prepared to allow THE FULL PRICE PAID for any of these at the side within TWO MONTHS, if still in reasonable condition, in part payment for a new 1908 model.

WHAT COULD BE FAIRER?

MINERVAS.

Let us quote you for new 1908 models. We can give the finest possible terms for these machines, cash or exchange. Any other make quoted upon request.

3½ h.p. **VINDEC**	£48	10	0
5 h.p. **VINDEC**	53	0	0
5 h.p. **TOURIST**	52	0	0
2¾ h.p. **MINERVA**	29	0	0
3½ h.p. **MINERVA**	32	0	0
4½ h.p. **MINERVA**	39	0	0
7-8 h.p. **MINERVA**	45	0	0
1¾ h.p. **F.N.**	35	0	0
4½ h.p. **F.N.**	50	0	0
3½ h.p. **TRIUMPH**	48	0	0
3½ h.p. **SILVER**	39	0	0
3½ h.p. **BROWN**	37	0	0

Any other makes gladly quoted upon request.

TRICARS.

REX Triette, 6 h.p., twin	£25	0	0
HUMBER Tricar, chain drive	15	0	0
HUMBER, two speeds, water-cooled, chain-driven, handle-starting	28	0	0

FORECARS, etc.

Nice Forecar, with front brakes	£5	0	0
BAT Sidecar, good condition	4	10	0

ACCUMULATORS.

A genuine and cheap accumulator at last! Guaranteed twelve months. Genuine **"RIP"** accumulators. Note particularly the prices:

REX size, 3¾ x 2½ x 5¼in.	£0	12	0
ARIEL size, 4 x 1⅞ x 6¼in	0	12	6
MINERVA size, 4¼ x 2½ x 6½in.	0	13	6

Try one on approval. Cash returned if not perfectly satisfactory.

ACCESSORIES.

Osborne Free Engine	£1	7	6
Salsbury Car Headlights, pair	5	0	0
¾in. Leather Belting, per foot	0	0	6
Lightweight Engine, 1½ h.p. Werner	2	0	0
Twin Trembler Coil	0	12	6
Charging Plant (large)	4	0	0
Steering Wheel, dished	0	7	6
Plated Seat-pillars	0	1	0
Trailer, with wicker box, new tyres, suit tradesman	2	0	0
Variable Pulley, new, fit Rex	0	12	6
Footrests, fit '06 Rex	0	5	0
Footrests, fit N.S.U.	0	5	0
Frame, with wheels	0	15	0
Vim Stands	0	6	0
Densmore Typewriter	5	0	0
Belt Rims, each	0	3	0
Two-speed Gear, fit Peugeot	4	10	0
Charging Battery	1	5	0
Peugeot Engine, 3½ h.p. (new)	6	0	0
Lathe, 4in. centres, screw-cutting	10	0	0
Front Spindles, with cones	0	1	0
B. and B. Carburetter	1	0	0
Gas Engine and Dynamo	4	10	0
B100 Saddles, and your old one	0	8	6

TUBES.

FULLY GUARANTEED.

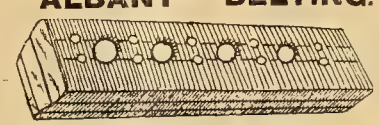
26 x 2in.	6/-	28 x 2in.	7/-
26 x 2¼in.	7/-	28 x 2¼in.	7/6
26 x 2½in.	8/-	28 x 2½in.	8/-

Immediate Delivery. Approval.

COVERS.

26 x 2in.	16/-	28 x 2in.	17/-
26 x 2¼in.	17/6.	28 x 2¼in.	18/-
26 x 2½in.	21/6.	28 x 2½in.	22/-

"ALBANY" BELTING.



⅝in. 7d., ¾in. 8d., ⅞in. 9d., 1in. 10d. per foot.

GOODRICH ALL-RUBBER NON-SKID.

26×2¼in. cover, £2.

9/- allowed on your old cover in part payment.

Good high tension magneto motors wanted for spot cash.

MAUDE'S MOTOR MART,

Powell Street, HALIFAX.

National Telephone 433.

MOTOR BICYCLES FOR SALE.

3 h.p. Singer, late model, belt drive, high tension magneto, Longuemare, Xl'all spring forks, new back cover, front as new, carrier, stand, horn, and bag; cost £60, accept £18 18s.—A. Glew, 64, Aire Street, Goole, Yorks.

GENUINE Bargain.—3½ h.p. Minerva, spring forks, spring seat-pillar, magneto, first-class condition, £18 10s.; bargain, 1¾ h.p. De Dion, good condition, Longuemare, comfortable motor, quick sale, £6 10s.—Clement, Eardisley.

EDINBURGH.—Scottish readers, be sure not to miss our grand show of motor cycles. Stands 126 and 127, Industrial Hall, Scottish National Exhibition; 16 different makes shown by Alexander's Motor Exchange, 110, Lothian Road, Edinburgh.

EDINBURGH Exhibition, Industrial Hall. Stands 126 and 127; finest exhibition of motor cycles ever shown on any one stand, from May till October.—Alexander's Motor Exchange, Lothian Road.

EDINBURGH. — Vindecs, Quadrants, Rexes, Adlers, Moto Reves, Ariels, Zeniths, Minervas, Griffons, Nortons, N.S.U., Advances, Rocs, etc., in stock, and to be seen at Alexander's Motor Exchange, Edinburgh.

MINERVA, 2 h.p., in perfect running order throughout, engine nearly new, two powerful brakes, Palmer tyres, two accumulators, spare valves and springs, etc.; only wants seeing; £9; any time after 7.—F. Palmer, 53, Highgate Hill, N.

6 h.p. Bat, Jap spring frame and forks, special brakes, Jap lubricator, Autoclipse lamp, two new belts, studded tyres, perfect condition, full kit tools and spares, not done 2,000 miles; owner bought car; £30.—Humphrys, 6, Comberton Terrace, Kidderminster.

31/2 h.p. Quadrant, 1906 pattern, but very little used, and as new, enamel and plating perfect, spring forks, tyres unscratched, very fast, and splendid hill-climber, with all spares, stand, etc.; price £20, no offers.—G.G., 34, Cambridge Place, Paddington, W.

SPECIALLY Built 2¾ h.p. Minerva, new last May, only run 500 miles, Clincher A1 tyres, everything in new condition and absolutely perfect, fast, powerful, and a wonderful hill-climber; sacrifice for £16, cost £32; tricar wanted.—Hunter, 10, Hamilton Street, Paisley.

FULL of all the good qualities necessary to make a perfect motor cycle is the four-cylinder F.N., not a machine to go 90 miles an hour, and —— but goes comfortably all the time, whether it be 4 or 40.—For particulars, trials, etc., write F. Heath, Salford Priors, Evesham.

MINERVA and Rex.—We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

£11.—Genuine 2¾ h.p. De Dion Bouton (upright), Chater-Lea, recently rebushed, and new piston, cylinder, belt, and Longuemare carburetter fitted, Main-Hilton stand, excellent tyres, spare inner tube, 20 amp. accumulators, accessories; inspection by appointment.—Miller, 57, Tulse Hill, Brixton.

TRIUMPH, 2½ h.p., low seat, long handlebars, etc., just been thoroughly overhauled, fast, powerful, £16; Bradbury, with sidecar, 3 h.p., Mabon clutch, etc., in good condition, complete, £16; sell separate; Werner lightweight, 1¾ h.p., low built, in good condition, £6 10s.—Durham Motor Works, South Ealing, W., opposite Station.

5-6 h.p. Twin Rex Forecar, Nala two-speed gear, with starting handle, steel studded tyre back wheel, new tubes fitted to front wheels, wickerwork forecarriage, bucket seat (upholstered) for driver, just recently renovated, new Fuller Syntonic coil, new accumulator; £35; owner bought car.—Apply 349, West End Lane, Hampstead.

1908 5½ h.p. N.S.U. Twin-cylinder Motor Cycle, 22in. frame, 26in. wheels, girder forks, with Matchless spring attachment, Continental tyres, 2½in. magneto, absolutely new and unsoiled with stand, also lamp, horn, tools, etc.; list price £55, sell for £43, packed in crate, and despatched same day as cash received.—W. Harrison, 5, Lincoln Street, Haslingden

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

TRIUMPH 1908 Motor Cycle, new; £48.—Morriss, 139, Finchley Road, N.W.

2½ h.p. Werner, excellent condition, very low; trial; £10.—52, Perry Hill, Catford.

3½ h.p. Peugeot, nearly new; £18. — 158, Wanstead Park Avenue, Wanstead Park.

3½ h.p. 1907 Magneto Triumph; offers.—At Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

MINERVA, 3½ h.p., as new, also leather suit; £22.—Rogers, 5, Burlington Road, Tottenham.

2¾ h.p. Kerry, vertical engine, perfect, Chater-Lea frame; £10 10s.—31, Fisher's Lane, Chiswick.

3½ h.p. Excelsior, spray, trembler; £12, offer; after 7.—Digby, 66, Wolfington Road, West Norwood.

1907 Brown, 3 h.p., as new; £20; second-hand ladies' bicycles part payment.—Wilks, Crickhowell.

3 h.p. Chater-Lea, F.N., good tyres, going order; £9 10s.—1a, Frideswide Place, Kentish Town, N.W.

1907 Rex, single-cylinder, as received from makers; £20. — Shacklock, Manby Street, Wolverhampton.

5-6 h.p. Twin Rex, spring forks, guaranteed; only £17 19s. 6d.—Garaged, Hardy's, Carlton Street, Halifax.

6 h.p. Twin Zedel, very smart, fast, prize winner, splendid condition; £19 10s.—98, Potternewton Lane, Leeds.

QUADRANT, 3½ h.p., early 1907, tyres and condition good; £24; no offers.—Long, 46, Upton Street, Gloucester.

3 h.p. Quadrant, splendid compression, long bars, low saddle, Longuemare; £10. — 63, Pine Road, Cricklewood.

REX 5-6 h.p. Cycle, Trimo forecar, new Whittle, four-speed gear; cash offers.—Mawson, draper, Morecambe.

ARIEL, 2½ h.p., spray carburetter, Dunlops, spare covers, etc.; 10 guineas.—Hall, 139, Finchley Road, N.W.

£5 10s.—Minerva Lightweight, B.S.A., 1¾ h.p., fast, reliable; any trial.—Hairdresser's, 59, Barking Road, Canning Town.

BAT, sprung frame, 2¾ h.p. De Dion, Clinchers, just been overhauled; £17 10s.—Johnson, 82, North Road, Brighton.

1908 Triumph, 3½ h.p., all latest improvements, not run 200 miles, equal to new; £43.—H. A. Hyde, Ormskirk, Lancs.

FOR Sale, Beeston Humber, 2½ h.p., good running order, very fast; cheap. — Letter, Tyrrill, 98, Rossiter Road, Balham.

2¾ h.p. De Dion (genuine), F.N. carburetter, trembler, tyres good, running order; £7 10s.—Hart, 31, Vanguard Street, Deptford.

3½ h.p. Motor Cycle, splendid condition, just been overhauled; £12 10s.; only wants seeing.—E., 32, Crowhurst Road, Brixton.

3½ h.p. 35-guinea 1908 Magneto Rex, scarcely soiled, run about 400 miles; offers wanted.—Moore, 27, Curzon Street, Long Eaton.

1¾ h.p. Minerva, splendid goer, ready for road, new belt, etc., good driver; sacrifice £5.—Millican, Holm Hill, Dalston, Cumberland.

2¾-3 h.p. Humber, two accumulators, only ridden 300 miles, perfect; £14; cash wanted.—Catt, 379, London Road, St. Leonard's-on-Sea.

2¾ h.p. M.M.C. Motor Cycle, wipe, trembler, rubber belt, exceptionally good machine; £14.—E. D. Platt, Woolsthorpe Belvoir, Grantham.

3 h.p. Quadrant Motor Cycle, F.N., torpedo tank, two accumulators, plating and enamel not scratched; £18.—1, Osborne Road, Gillingham, Kent.

TWO 3 h.p. Humbers and Sidecar for sale, cheap; what offers?—Apply, The Motor Repair and Supply Co., 107, Bridge Road, Hammersmith, W.

1907 5 h.p. Twin, magneto, Rex cantilever seat, spring forks, not run 500 miles, absolutely reliable, as new; £29. — Butterworth, Pocklington.

HELP YOURSELVES.

Cash, Credit, or Exchange.

Send your requirements and we will try to accommodate you.

1908 3½ h.p. **TRIUMPH** (new) ..	£48	0
1908 2½ h.p. **REX** (new)	26	5
1908 3½ h.p. **REX** Tourist (new) ..	36	15
1908 3½ h.p. **REX DE LUXE** (new)	47	5
1908 5 h.p. **REX** Tourist (new) ..	42	0
1908 5 h.p. **REX DE LUXE** (new)	52	10
1908 3½ h.p. **N.S.U.**, magneto (new)	42	0
1908 5½ h.p. **N.S.U.**, magneto (new)	52	0
1908 **N.S.U.** Lightweight (new) ..	34	10
6 h.p. Twin **ANTOINE**, R.O.M.	22	0
3½ h.p. Magneto **REX**	18	10
3¼ h.p. **REX**, spray, 21½ frame	11	10
3½ h.p. **QUADRANT**, 1906	18	10
5½ h.p. Twin **REX**, black finish ..	23	0
5½ h.p. **REX DE LUXE**, magneto	27	10
2¾ h.p. **PHELON AND MOORE**	27	10
Twin **REX**, black finish, as new ..	23	0
6 h.p. Twin **REX**, non-skids	22	10
4 h.p. **ANTOINE**, 26 × 2¼ Clinchers	16	10
3 h.p. **BAT**, like new, two speeds	20	0
3½ h.p. **SIMMS**, mag., 2¼ Palmers	17	10
6 h.p. 1907 Twin **REX**, nearly new	23	0
6 h.p. 1906 Twin **REX**, nearly new	22	0
4-5 h.p. Twin **ALCYON**	23	10
4 h.p. Twin **WERNER**, fine machine	19	19
4½ h.p. Twin **HADLEY**, long & low	17	10
5½ h.p. Twin **REX**, 2¼ Peter Unions	22	0
3½ h.p. **REX**, 1906, 2¼ tyres, extra good	16	5
3½ h.p. 1906 **REX**, spring forks	15	10
3½ h.p. **MINERVA**, spring forks	17	10
3½ h.p. **REX**, spray, fine climber	11	10
3½ h.p. **MINERVA**, 26 × 2¼ Clinchers	16	10
3 h.p. **GIVAUDAN**, nearly new	16	0
3 h.p. **ROVER**, 26 × 2¼ Palmers	13	10
3 h.p. **LLOYD'S**, 26 × 2¼ Palmers	13	10
4 h.p. **ANTOINE**, spring forks ..	16	0
3½ h.p. 1906 **REX**, spring forks	15	0
4 h.p. **ANTOINE**, Palmers	16	10
3½ h.p. **BROWN**, footboards	15	0
4 h.p. **JAP**, 1907, Chater Lea	24	0
2⅓ h.p. **CLEMENT**, very low	11	0
1¾ h.p. **SIMMS**	7	0
1¾ h.p. **SIMMS**, magneto	7	0
1¾ h.p. **MINERVA**.....	5	15

TRICARS.

5½ h.p. **REXETTE**, W.C. 2 speeds	35	0
8-10 h.p. **REXETTE**, W.C.	47	10
5½ h.p. **QUADRANT**, 2 speeds ..	35	0

CARS.

9 h.p. **FAFNIR**, tonneau	£57	10
8 h.p. **ARGYLL**, two seater	57	10
10-12 h.p. **BRUSH**, tonneau	70	0

Genuine Calmon Covers with non-slipping tread.—26 x 2, **14/3**; 28 x 2, **15/9**; 28 x 2¼, **16/9**; 28 x 2½, **20/6.**

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HALIFAX.—45s. deposit and six monthly payments of 29s. 6d. secures 2¾ h.p. Excelsior, 2¾ h.p. Humber, 3 h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 3 h.p. Auto-motor, 3¾ h.p. Rex, 2¾ h.p. Aurora, 2¼ h.p. Minerva, spray, 3 h.p. M.M.C.; all guaranteed running order.

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High-class Machines wanted for spot cash.

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STOCKPORT.—4 h.p. 1907 twin N.S.U., ma neto, two speeds, free engine; 28 guine

STOCKPORT.—2½ h.p. lightweight, almo new, 26 by 2½ Clinchers, new, splend climber, low built; £12.

STOCKPORT.—2 h.p. Minerva, 2½ Clinche almost new, in splendid running orde £8.

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MINERVA, 2½ h.p., develops quite 2½ h. tyres good. Watawata; for quick sal trial; £11, or offer.—Wootten, 84, Whippe dell Road, Watford.

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2¾ h.p. Minerva, Chater, Palmers, Bl Watawata, two accumulators, goi order; £10, offer.—Cycle Shop, The Para Loughborough Junction.

VINDEC Special, 5 h.p., magneto, Truffau new August, 1907, perfect conditio offers, or exchange Triumph, 1908 preferre —"Oreston," Sidcup, Kent.

GENUINE Licensed De Dion, 4½ h.p., M liner body, seats two, in good ru ning order and condition; £25.—Shacklo Manby Street, Wolverhampton.

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3½ h.p. 1907 Minerva, magneto ignitio spring forks, spring footrests, co dition absolutely like new; £24.—At Wa chope's, 9, Shoe Lane, Fleet Street, Londo

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ROYAL ENFIELD-MINERVA, 3½ h.p., Pa mer tyres, two 20 amp. accumulato clean, good condition, spares, registere bargain; seen and tried.—Harper, 8, Folk stone Road, Edmonton.

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1¼ h.p.	WOLF, light-weight, 1908 model	15 0
3½ h.p.	MINERVA, free engine	17 10
3½ h.p.	VINDEC, two speeds	28 0
4 h.p.	STEVENS, low frame	17 10
2¾ h.p.	F.N., Chater-Lea frame	15 0
5½ h.p.	REX DE LUX, magneto, two speeds	25 0
2½ h.p.	FAIRY, horizontal engine, twin, lightweight	12 10
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3½ h.p.	N.S.U., 26in. wheels	15 0
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2¾ h.p.	HUMBER	15 0
2 h.p.	HUMBER	5 15
5 h.p.	REX	17 10
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2 h.p.	MINERVA	10 10
2 h.p.	RALEIGH	7 10
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2¼ h.p.	MINERVA	10 10
3½ h.p.	CYCLONE	7 10
3 h.p.	QUADRANT	12 12
1¾ h.p.	WERNER	6 10
2¾ h.p.	DE DION	7 10
2¾ h.p.	ORMONDE	5 0
3 h.p.	ASTER	6 10
2¼ h.p.	F.N.	12 10
4 h.p.	ROC, magneto	20 0
6 h.p.	JAP, Osborne free engine	25 0

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LONDON Rex Agency.—Clearance of second-hand machines.

LONDON Rex Agency.—1906 twin Rex, splendid running order; 18 guineas.—Store Street, W.C.

LONDON Rex Agency.—3½ h.p. Rex, 1905; 10 guineas; good running order.

F.N., 3 h.p., nice mount, perfect condition; £14.—141, High Street, Merton, S.W.

3½ h.p. M.M.C., footboards; bargain, £12.—Leach, 8, Foxley Road, N. Brixton.

2½ h.p. Kerry; £9 10s.; perfect.—H. Uhlich, 86, Pritchards Road, Hackney, N.E.

2¾ h.p. Kelecom, good running order; £9 15s.—Clark, 109, The Grove, Stratford.

2¾ h.p. De Dion, good condition, spring forks, studded back; £10.—Wilcocks, Trebartha, Launceston.

3¼ h.p. Rex, Clincher tyres, long bars, in beautiful order; £8 10s.—255, Earlsfield Road, Wandsworth.

1907 Magneto Triumph, in fine condition scarcely scratched; £33.—Love, Cambridge Road, Wanstead.

6 h.p. Jap, No. 6 frame, free-engine pulley; not done 500 miles; £28.—Garaged at Wauchope's, 9, Shoe Lane, E.C.

TWIN-CYLINDER N.S.U., splendid condition; a bargain; magneto ignition.—63, Pelham Road, Wimbledon, S.W.

3½-4½ h.p. De Dion, low built, very powerful, as new, all spares; £18; seen any time.—19, Sistova Road, Balham.

TRIUMPH, magneto, 1906, guaranteed perfect, just overhauled by makers; £24.—Love, 32, Cambridge Road, Wanstead.

3½ h.p. Minerva, in going order, footboards or pedals, two accumulators; £17 10s.—Goddard, 7, St. James Street, Islington, London, N.

PHŒNIX-MINERVA, 1¾ h.p., long handlebars, low seat; £6 10s., or for anything useful. — Apply, 30, Minerva Street, Hackney Road, N.E.

MOTOR Cycle, perfect, climb anything, spray, trembler, A Won Clinchers, almost new; £15, genuine bargain.—45, Burton Road, Brixton.

2½ h.p. Kerry, low, long bars, lamp, stand, tools, two belts, inner tube, footrests, numerous spares; £11; overhauled. — "Grange," Southall.

3¼ h.p. Excelsior, M.M.C., new Palmer cord back, new Watawata, in splendid going order, just ready for touring, quantity spares; must sell; £14.—Francis, Newsagent, Brentwood.

3¼ h.p. Rex, spring forks, Peter-Union and Sawyer non-skid tyres, Michelin D.B. tubes, Davison's petrol and oil gauges, perfect condition; £11 10s.—Reynolds, Broadway, Dorset.

12 Guineas, cash.—2¼ h.p. Kerry (medium lightweight), Watawata, and new spare ditto; engine spares also, first-rate condition.—L.C. c/o King, 58a, Gosberton Road, Balham, S.W.

3½ h.p. 1908 model Triumph, magneto ignition, handle-bar control, all-rubber non-skid cover on back; used two months; bargain price £39.—T. Baker and Sons, 37, Friar Street, Reading.

2¾ h.p. Kerry, good condition, tyres fair, fitted Mills-Fulford sidecar, convertible to trailer; £18, or near offer; would separate.—Cowley, 13, Surrey Road, Waverley Park, Peckham Rye.

2¾ h.p. Minerva, on genuine B.S.A. frame and fittings, Palmer tyres, little used, also Mills-Fulford trailer, complete with lamp and numerous accessories; £18 18s., complete, or sold separately.—Goodman, 76, King's Road, Chelsea, S.W.

ARIEL! Ariel!! Ariel!!!—For immediate delivery, the 2½ h.p. lightweight; write for catalogue and full particulars; also 3 h.p. and 5 h.p. twin-cylinder models; a few 3 h.p. and 5 h.p. twins at clearance prices.—Ariel Works, Bournbrook, Birmingham.

N.S.U. Twin, 1907, 6 h.p., magneto, delivered June last, perfect condition, Premier two-speed gear and Roc clutch, Palmer cord voiturette tyre back, Dunlop front, Advance adjustable pulley, all accessories, complete tools; £45.—No. 23, *The Motor Cycle* Offices, Coventry.

MOTOR BICYCLES FOR SALE.

3½ h.p. Twin Werner, low machine, long bars, only soiled, and in beautiful order; £17 10s.—128, High Road, Tottenham.

3⅜ h.p. Rex, spring forks, Continentals, as new, grand goer; £15.—Address above.

3 h.p. Trent, Chater-Lea, long bars, low seat; a genuine bargain, £11 10s.—Address above.

2¼ h.p. Humber, Longuemare, almost new, grand hill-climber, long bars, etc., guaranteed; £8 10s.—Address above.

3¼ h.p. M.M.C., low-built, Chater-Lea frame, thoroughly done up, as new, very powerful and fast; real bargain, £12 10s.—Address above.

3½ h.p. London, Chater-Lea frame, handle-bar control, accessories, very fast and powerful, splendid condition and perfect working order; great bargain, £11 10s.—Address above.

5 h.p. Twin Hamilton, B. and B. carburetter, very fast and powerful, perfect condition, grand for passenger work; £17 10s.—Address above.

2¾ h.p. Curry Motor Cycle, Stevens engine, in good condition, new belt, two accumulators; bargain, £10, or nearest offer.—Shenton, 34, Thamcs Street, Leicester.

2½ h.p. Lightweight, absolutely new, low frame, long handle-bars, Dunlops, Longuemare, Bowden exhaust lift, Gripwell rim brake; bargain, £18 10s.—B., 38, Lonsdale Road, Barnes, S.W.

MOTOR Cycle for sale, 2¾ h.p. Kelecom engine, low saddle, long bars, all been re-enamelled and plated, and thoroughly overhauled two weeks ago, is in thorough sound condition; will sell, with two accumulators (one new), new 12s. 6d. Lucas, new hooter and pump, for £20 cash; no offers; owner wants cash, and would ride 50 or 60 miles to purchaser.—F. G. Thomas, 154, Asylum Road, Peckham, S.E.

6 h.p. Rex (Gold Medal End-to-end, 1906), Mabon, R.O.M., thumbslides, genuine Longuemare automatic, Guenet trembler, P. and R. accumulators, two-way and handle-bar switches, 2¼ Continentals, studded band, jointed tube, ⅞ths rawide, folding footboards, pedals, carrier, stand, number plates, spares (new), ⅞ths Shamrock, Rich's detachable, inlets, exhausts, springs, washers, plugs, with best Montgomery, latest non-skid couplings, whole in excellent running order; trials by appointment; £30; bicycle only £25.—Elwes, 1, Hall Place, St. Albans.

TRICARS FOR SALE.

4 h.p. Kerry-Antoine, very good condition; £18, bargain. — 479, Green Lanes, Harringay.

4½ h.p. Twin Hamilton Tricar, not been 800 miles; £20.—Wauchope's, 9, Shoe Lane, E.C.

STOCKPORT.—5½ h.p. Twin Rex, very powerful, footboards, in splendid running order; £20.

STOCKPORT.—8 h.p. Three-cylinder Jap Dual Car; cost £130, June, 1907, Palmer cords and Grose non-skid, 28 by 3½ back, all unscratched; what offers?—Lund and Davies, Heaton Lane, Stockport.

3½ h.p. Tricar, to clear, Mabon clutch, quite new; what offers.—Slack's Garage, Stockport.

HALIFAX. — 5½ h.p. Rexette, open frame, wheel steering, two speeds, excellent order; £35.—Below.

HALIFAX.—Rex Triette twin-cylinder, 5-6 h.p. V engine, splendid light two-seater; clearance price £23 10s.—Below.

HALIFAX.—4 h.p. Royal tricar, open frame, water-cooled, foot clutch, wheel steering, good condition; £26 10s.

HALIFAX.—Twin-cylinder 8-10 h.p. Rexette, special car, two speeds, carry three anywhere; £47 10s.

HALIFAX.—4½ h.p. air-cooled Stevens Tricar, 26 wheels, very low, tyres almost new; £19 10s. — Halifax Motor Exchange, Westgate, Halifax.

PHŒNIX Trimo, 2¾ h.p. Minerva, powerful engine; £12.—26, Derwent Road, Palmer's Green, N.

TRICAR, 5 h.p., water-cooled, coach-built, three-speed gear; £35.—C., 34, Chiddingstone Street, Fulham.

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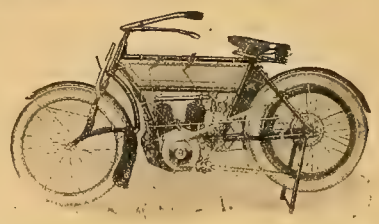

VINDEC SPECIAL, Model F, 5 h.p., magneto ignition. We have two 1908 models of the above ready for immediate delivery. Ridden a few miles only. A fine opportunity to obtain a bargain. Our price, **£45** cash.

TRIUMPH 3½ h.p. magneto, latest model, **£48.**

ROYAL ROC, two-speed magneto, latest model, **48 Guineas.**

REX DE LUXE, two speeds, 5 h.p., twin wheel, magneto, **58 Guineas.**

REX FEATHERWEIGHT, 2½ h.p., magneto, **25 Guineas.**

L.M.C., magneto, latest model, winner of the Birmingham hill-climb, **45 Guineas**

ROYAL ROC, two speeds, magneto, spring forks, 1908 model, complete with castor wheel side car, not ridden 50 miles, cost over £62; our price, **£50.**

REX LITETTE, 1908 model, 6 h.p., magneto, two speeds. Ideal machine for two riders. Not ridden 50 miles. Splendid bargain. Cost over £80; our price, **£65.**

PHOENIX TRIMO, 5-6 h.p., fitted with Simms-Bosch magneto, only delivered last month. A bargain. Cost over £97; our price, **£80.**

REXETTE, water-cooled, 5 h.p., wheel steering, coach built, two speeds, **£35.**

MILLS & FULFORD Castor Wheel Sidecar, cane seat; cost over £15; used once to test model. Our price, **£10 19s.**

PHANOMEN, 3½ h.p., two speeds, Nala hub, magneto ignition, fan cooling, 1908 latest model. Price, **£53.**

G.B., 3 h.p., magneto, two speeds, Nala hub, absolutely new. Usual price, £46 10s.; take **£39 10s.**

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LONDON W.C.

Telephone—260 Central. (Facing First
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TRICARS FOR SALE.

6 h.p. Jap, splendid condition, fast an powerful; offers wanted.—337, We Green Road, Tottenham.

REXETTE, 8 h.p., twin-cylinder, sea three, good running order; own bought car; £40, or offer.

3 h.p. Rex, with Trimo forecarriage, an Phelon and Moore two-speed gear; £1 —Further particulars, Grace and Sutcliff Keighley.

REX, 3½ h.p., chain driven tricar, wit spare front wheel to convert to cycl £12.—G.L., 13, Probert Road, Brixton.

9 h.p. Riley Tricar, w.c., twin, three speed reverse; £70, good motor cycle part. 128, High Road, Tottenham.

5 h.p. w.c. Excelsior Tricar, Oppermar three-speeds, handsome machine, e ellent condition; any trial; £35.—128, Hig Road, Tottenham.

4½ h.p. Kelecom Light Tricar, in excelle condition, and splendid running orde very powerful and reliable, good on hill £22.—128, High Road, Tottenham.

CASH Bargain.—Twin Kerry Tricar, 5 h.p like new; trial; £28 10s.; good bi part.—128, High Road, Tottenham.

LEEDS.—5-6 h.p. Rexette, in first-cla order; cost over £100, a bargain at £ —Bridge Garage, 169, Briggate, Leeds.

CHATER-LEA Tricar Chassis, with clutc water tank, etc.; £10 10s.—Wauchope 9, Shoe Lane, Fleet Street, London, E.C.

FAMOUS Phœnix Trimo, coach-built, anywhere and back, no trouble; £ no offers.—3, Victoria Avenue, East Ham.

TRICAR, 4-5 h.p., water-cooled, two-spee climb anything, everything in perfe order.—Johnson, 82, North Road, Brighton

£12, or best offer.—3½ h.p. tricar, two speed free, Longuemare, new belt and tyre back, running order. — 3, Charles Stree Peterborough.

TRICAR, in splendid running order, Pa mers, footboards, spares, tools; see any time.—524b, Kingsland Road, Dalsto London, N.E.

HOW'S This!—Latest 1908 Phœnix Trim not run 400 miles, better than new for immediate cash, £65.—R. Else, Leawoo near Matlock.

PHŒNIX Trimo, good condition, new be and back tyre, several spares, com plete; £15, gift; owner no time.—41, Woo Street, Barnet.

ARIEL Tricar, 5.8 h.p., three speeds, whe steering, belt drive, run about 2,2 miles, excellent order; £50, or near offer. Hetherington, Moffat

6½ h.p. Aster Tricar, water-cooled, tw speeds, splendid hill-climber, tyr excellent condition; any trial; £22.—M., 3 Rosslyn Hill, Hampstead.

4½-5½ h.p. Car Built Tricar, chain drive two speeds, car tyres, all as new; £4 cost £100; exchange entertained; cash a justment.—71, Denmark Hill.

£15.—Tricar, 4 h.p. Aster enigne, Longu mare, in perfect condition; trial run owner bought car. — Roberts, 31, Wes Road, W. Hampstead, N.W.

3½ h.p. Bercley Tricar, chain drive, a ligh inexpensive runabout, in going orde and condition; price £15. — Wauchope's, Shoe Lane, Fleet Street, E.C.

TRICAR, 5 h.p. twin-cylinder Anglian, tw speed gear, chain drive, excellent co dition; any trial; £28; no offers.—Wallis, Prospect Street, Radford, Nottingham.

REXETTE, 5½ h.p., bucket seats, whe steering, car covers, lamps, spares £45; magneto, 3½ or over, and cash ente tained.—Adrian Private Hotel, Lancaster.

3½ h.p. Kerry Tricar, water-cooled, Longu mare, Palmer tyres, B100 saddl sound condition; £21 10s.; entertain moto cycle as part.—Clark, 109, The Grove, Stra ford.

PHŒNIX Trimo, 5 h.p. twin Peugeot, fa cooled, coach-built, tyres perfect, tw speeds, free engine, switchboard for electri lamp, voltmeter, and ignition, two-way splendid condition, spare tube, jack, tool etc.; cost over £100; owner bought car price £50.—Wilson, 2, Wolfington Road, W Norwood, S.E.

CARS FOR SALE.

1½ h.p. Alldays Traveller, two speeds, reverse; £21.—190, Mellison Road, Tooting.

3½ h.p. Humber Two-seater, three speeds, reverse; £29. — 190, Mellison Road, Tooting.

10 h.p. Gardner-Serpollet, side entrance; cheap; £45.—190, Mellison Road, Tooting.

12-14 h.p. Speedwell, tonneau two-cylinder, late model; £85.—190, Mellison Road, Tooting.

18-28 h.p. Gladiator-Aster, side entrance, four-cylinder, long chassis; £165.—190, Mellison Road, Tooting.

35-50 h.p. De Dietrich, tonneau de luxe, four-cylinder, magneto and electric, pressed steel frame; cost £1 250 in 1905, price £185.—190, Mellison Road, Tooting.

10-12 h.p. Star, two-cylinder, tonneau, four speeds; £50.—190, Mellison Road, Tooting.

16-20 h.p. Corre, tonneau, four-cylinder, screen, hood, similar to Renault; £125.—190, Mellison Road, Tooting.

12-16 h.p. Provincial, two cylinders, seats five, perfect order, headlights, spares; cheap.—18, Hailsham Avenue, Streatham.

EXCEPTIONAL Bargain.—Ford, four-seater, 10 h.p., all parts, splendid condition.—Maclaren, Park Parade, North Finchley, N.

30-38 h.p. Four-cylinder Car, six-seater, perfect; any trial, etc.; 90 guineas.—Richmond, 110a, Grosvenor Road, Pimlico.

10-12 h.p. Dennis, two cylinders, tonneau, new tyres, splendid condition; part exchange. — 98, Potternewton Lane, Leeds.

3 h.p. Car, De Dion engine, in good running order, detachable tonneau, Dunlop tyres; £50. — A. Holland, Earlsdon, Coventry.

£38.—Aster, 8 h.p., detachable tonneau car, grooved Dunlops, lamps, horn, etc., perfect order.—Brown, 518, Kingsland Road, Dalston.

MINIATURE Standard, two-seater, four-cylinder air-cooled Jap engine; examination; trial.—Vialls, 10a, Alexandra Road, Hendon, N.W.

3½ h.p. De Dion, body re-varnished and upholstered, perfect condition, three speeds and reverse; £80. — 264, Deansgate, Manchester.

3½ h.p. Humberette, two speeds, reverse, re-painted, upholstered, and overhauled, perfect order; £35, lowest.—17, Milnrow Road, Rochdale.

7-8 h.p. Gregoire, twin-cylinder, two ignitions, four grooved Dunlop tyres, brand new two-seated body; £100.—T. Baker and Sons, 37, Friar Street, Reading.

11½ h.p. Benz, fitted with leather hood lately the property of a doctor, in good order and condition; price £20. — T. Baker and Sons, 37, Friar Street, Reading.

3½ h.p. Humberette, two speeds and reverse, Dunlop tyres, fitted with Cape hood (lately cost £5), in good condition; £40.—82, Queen's Road, Peckham, London.

6 h.p. Clement, two-seater, three speeds and reverse, smart and absolutely reliable; cost £130 last year, what offers? Any trial; any examination.—76, Station Road, Finchley.

GENUINE 4½ h.p. De Dion Car, three-seater, two speeds; sell £30, or exchange for good motor cycle, not less than 3½ h.p., two speeds and sidecar.—Brown, High Street, Bridgwater.

JACKSON Runabout, four-wheeler, 3½ h.p. water-cooled engine, two-speed gear; this is really a small car; would accept £10 offer; room wanted.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

7-9 h.p. Twin-cylinder Two-seated Swift, phaeton body. White and Poppe engines, used 11 months, tyres all good, in perfect order and condition; £130.—T. Baker and Sons, 37, Friar Street, Reading.

6 h.p. De Dion-Lotterette, two bucket seats three speeds and reverse, cardan, long bonnet, enclosed radiator, £60, exchange entertained; 20 h.p. five-seated Wolseley, in guaranteed order, £80, or exchange. — 9, Parkholme Road, Dalston, London.

EPR

Accumulators

should be specified when ordering your new 1908 mount.

They contain all the latest improvements in storage battery construction. Our new list will tell you why "E.P.R." cells are now so generally used. It will also save your money. A post card will bring you a copy by next post.

¶ What about your present accumulator? Why discard it and throw away money? Better send it up to us, and we will make it as good as new for about half of the cost of a new cell. We could send you letters received from clients all over the country, expressing absolute confidence and great satisfaction with the way we have dealt with their repairs.

¶ AGAIN. What about your present accumulator? Not worth repairing? Well, again we say, don't discard it. We take old cells in part payment for new "E.P.R." guaranteed accumulators. ONLY, please note this, our prices are fixed as low as can be consistent with good material and first-class workmanship. WE DO NOT CHARGE YOU A HIGH price for a new accumulator, and then allow you an inflated price for your old cell. Our prices are low, and the allowances we make for old cells are actual market value.

¶ We have specialised in accumulators since 1902, so you get the benefit of our experience.

P.S. DON'T forget to post that car! to night.

Richford and Co.

(Dept. M4),

ACCUMULATOR SPECIALISTS,

153, FLEET STREET, E.C.,

And at 52a, HIGH HOLBORN, W.C.

Established 1876.

CARS FOR SALE.

8-10 h.p. Four-cylinder Humber, swing seat side entrance body, Cape cart hood, folding wind screen, Stepney wheel, luggage grid and box, four lamps, upholstery and paintwork quite good; subject to any trial; £145.—T. Baker and Sons, 37, Friar Street, Reading.

ROVER Cars. — We have in stock for immediate delivery an 8 h.p. four-seated car, swing front seat entrance, painted Rover green, and upholstered in red leather, 1908 model; price £235.—Louis Davis and Son, Moseley, Birmingham.

ROVER Cars are acknowledged to be the most reliable car made. For the professional man, the business man, and the man on pleasure bent it offers an ideal and convenient means of travel. Read the harrowing experiences on motor cycle and tricars given in *The Motor Cycle*, and you will realise exactly what we mean when we say you can make an appointment and rely on getting there.

THE Price of the two-seated 6 h.p. Rover is £135, costs less in upkeep than a tricar of the same power, and is much easier to drive. We are prepared to make you a good allowance for your present machine in exchange, or supply on deferred payments. — Louis Davis and Son, Moseley, Birmingham.

HOTELS AND APARTMENTS.

WHEN Visiting London stay at Waverley Temperance Hotel, 17, Euston Square. Bed, breakfast, attendance from 3s.

GARAGES.

BRIGHTON.—Black Lion Garage, back of Sea View Hotel, Black Lion Street, fifth turning from Aquarium on right, along front; specially for motor cyclists; repairs on Sundays.

INSURANCE.

HUGH J. BOSWELL, Insurance Broker, Norwich, issues all classes of policies for motor cycles at lowest possible rates; inclusive policy, 20s.; fire insurance only 2s. 6d. for £25, or 3s. 6d. for £35.—Write for particulars.

LOST AND FOUND.

LOST, Sunday, between Staines Bridge and Hampton Court, an inner tube, enclosed in pink and white duster; anybody returning will be rewarded.—13, *The Motor Cycle* Offices, Coventry.

SITUATIONS VACANT.

ENGINEER Wanted, with small connection, to share motor works; rent free. —Write, P. Dowton, 207, Peckham Rye.

SITUATIONS WANTED.

YOUTH seeks situation as Junior-Salesman or otherwise, good knowledge motor cycles.—No. L2,499, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

GENTLEMAN desires partnership in motor and cycle business, workshop training, and electrical experience, willing to help work up business.—22, *The Motor Cycle* Offices, Coventry.

BUSINESSES FOR SALE.

FOR Sale, owner going abroad, low price for quick sale, motor and cycle business; latter can be discontinued if desired; old-established, on Brighton Road; lease contains valuable building extension agreement; certain opportunity. — Box 20, *The Motor Cycle* Offices, Coventry.

ACCUMULATORS.

TWO Fuller's Accumulators, 16 amp., 4½in. by 3in. by 3in., new, charged once; 10s. 6d. each, cost 16s.—W. Searle, 4, Crampton Road, Penge.

CELLULOID Accumulator Repair Outfits, useful for all celluloid repairs; full directions; post free, 1s.—Osborne Works, Forest Hill, London.

ACCUMULATORS Repaired promptly, any make; reasonable charges, best work; estimates given; full value for your old accumulator in exchange for our new "Mayfair" accumulators; special 15 amp., 10s. 6d.; 20 amp., 15s.; guaranteed one year.—Fellows, 49, Hertford Street, Mayfair.

ACCUMULATORS.

ACCUMULATORS.—8s. and your old accumulator secures a brand new Premier accumulator, fully guaranteed, not German trash.—Farrar, Square Road, Halifax.

THE Famous Ajax Accumulator, absolutely the finest it is possible to make (see advertisement in spring No. *The Motor Cycle*) specially protected terminals, 20 amp. size, will run 2,000 miles with Voltoo coil; Voltoo coils work on two volts; extremely economical and efficient; send for lists.—Ajax Electrical Engineering Co., 291, High Road, Ilford.

COUPLINGS.

UNITO Cycle Coupling, for connecting any ordinary pedal cycle to motor cycle.

THE Unito connects the steering and ensures faultless alignment.

THE Unito is so constructed that side strain and lean of machines is entirely obviated.

THE Unito is adjustable to accommodate differences in wheelbase and wheel and frame dimensions.

DON'T Buy a Sidecar before you know the advantage of having a

UNITO Coupling. It only costs one guinea.—Write, Dept. B., Unito Coupling Co., Ystrad, Glam.

ENGINES.

4-5 h.p. Simms Engine, M.O.V., water-cooled, quite new, and fitted high tension magneto; £11.—Farrar.

2½ h.p. Quadrant Engine Sets, cylinder, piston, connecting rod, crankcases, flywheels, exhaust valve, 37s. 6d. per set; 3 h.p. Quadrant sets, as above, 45s. set.—Farrar.

2¾ h.p. King Engine, vertical, fitted contact breaker, driving pulley, good puller; £3.—Farrar.

3¼ h.p. De Dion Pattern Engine, fine condition; £3 10s.—Farrar.

3½ h.p. Standard Engine, vertical, will take trailer up most hills; £3 15s. — Farrar.

3¼ h.p. Quadrant, 1907, new, perfect; £4 10s.—Farrar, Square Road, Halifax.

1½ h.p. Minerva Engine, with carburetter and coil; 35s.—35, Dover Road, Wanstead Park.

GIVAUDAN Twin Engine, and N.S.U. two-speed gear fitted to engine-shaft; £4 10s.; run 400 miles.—Goss, Great Colmore Street, Birmingham.

3½ h.p. Genuine De Dion Bouton water-cooled engine, cylinder, 80 by 85, Longuemare carburetter; £8 10s.—Apply, Ebron, Walton, Aylesbury.

2½ h.p. Buchet Engine, silencer brand new, £3 10s.; Chater-Lea plain coil, 7s.; trembler coil, 8s. — Wyatt, 11, Neal Street, Long Acre, London, W.C.

5 h.p. Twin Bercley engine, gear driven magneto, perfect, little used, £12; also pair F.N. spring forks, 30s.—G. Hall, 26, Oxford Road, Waterloo, Liverpool.

ENGINES.—Zedel, 2¾ h.p., £7 13s.; 3½ h.p., £9 0s. 10d.; 3½ h.p. twin, £10 0s. 7d.; 5½ h.p. twin, £13 12s.; all models in stock.—Rey, 5, Heath Street Motor Works, Hampstead.

3½-4 h.p. Twin Peugeot Engine, complete, in fine condition, £8; twin trembler Bassee-Michel coil, cost 50s., take 25s.; warranted good.—215a, Gloucester Road, Bristol.

3½ h.p. Centaur, M.O.V., with carburetter, silencer, complete, replacing with twin, £4 10s.; also coil, Guenet, trembler, accumulator, will sell lot for £5.—McHugh, Carluke.

TYRES.

FARRAR.—New inner tubes, fully guaranteed, not porous rubbish; 26 by 2, 7s.; 26 by 2¼, 7s. 6d.; 28 by 2, 7s. 6d.

FARRAR.—Tyres, fully guaranteed; 26 by 2, 16s.; 26 by 2¼, 17s. 6d.; 28 by 2, 16s. 6d.; 24in. same price.

FARRAR.—Tremendous stock Continental tyres; your old tyre accepted in exchange; list free. — Farrar, Square Road, Halifax.

PALMER, 26 by 2¼, fitted Grose band, unused, perfectly new; 45s.—Paxman, Tewkesbury.

Reg. No. 291289.
2/6 each Rivet.
Contacts vastly superior to platinum, cures misfiring.
Any parts fitted by return of post.

MAGNETO SCREWS, Complete, to fit BOSCH MAGNETO D.A. 2. Old pattern short screws, or new pattern long screw and nut, 5/6 pair. NO TROUBLE. EVERLASTING WEAR. Post free home or abroad. Write for particulars and testimonials, too numerous to publish.

J. EDWARDS-BROWN, 38, Herbert Road, PLUMSTEAD KENT.
Over 5 000 in use. Liberal trade terms.
Old Magneto Screws refitted, 2/6 each.

COMPRESSION

Cylinders Rebored

and new Pi tons fitted complete with Rings and Gudgeon Pin.

Compression means Power.

Please send for our booklet, which gives prices for this work and other repairs.

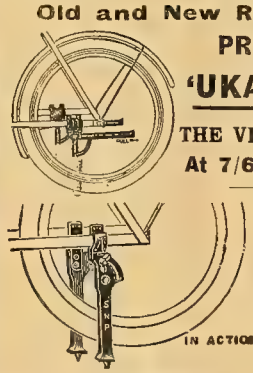
Repairs and alterations to all makes of motor cycles.

The Laystall Motor Engineering Works, Ltd.,

AUTOMOBILE REPAIRERS,
27 & 29, Laystall Street, Rosebery Avenue,
LONDON, E.C. Estab. 1900.
Tel. 12301 Central. Tel.: "Internally, London."

STANDS FOR

Old and New Riders.



PRICE'S
'UKANTES'
THE VERY BEST
At 7/6 Per Pair.

THE S.N.P. ARE THE IDEAL
IN ACTION **10 6 pr.**

Manufacturers,
SMITH, NORTH & PRIESTLAND,
Premier Works, Ellis Street,
EST., 1875. **BIRMINGHAM.**

—TYRES—

At extraordinary prices. **GENUINE CALMON,** with non-slipping tread, extra heavy, beaded, 26 x 2, 14/8; 26 x 2¼, 16/8; 26 x 2½, 17/3; 28 x 2, 17/11; 28 x 2¼, 21/-; 28 x 2½, 23/6.

BELTING, Grappler, best rubber grooved, ¾in., 9d.; 1in., 1/-; 1¼in., 1/3; 1½in., 1/6.
Samples free.

BANCROFTIAN CO., 49, Bishopsgate St. Within, E.C., and Walthamstow.

TYRES.

MAUDE'S.—Fully guaranteed tubes, 26 2in., 6s.; 2¼in., 7s.; 2½in., 8s.; 28 by 7s.; 2¼, 7s. 6d.; 2½in., 8s.; approval willing

MAUDE'S.—Covers, 26 by 2in., 16s.; 2¼, 6d.; 28 by 2in., 17s.; 2¼in., 18s.—Maude Powell Street, Halifax.

BROOKES Non-skid, used 200 miles, 26 2½; 35s.—Kingsley, fishmonger, Pitfi Street, Hoxton.

MOTOR Cycle Covers, 26 by 2¼, 26 by 2 by 2¼, and 28 by 2½, all beaded edge, a guaranteed; 15s. each.—Wauchope's, 9, S Lane, London, E.C.

PUNCTUREPROOF Leather Band so tioned inside your cover, preve bursts, and makes a tyre last longer; let most you one on for trial; 2s. each.—Bart leather merchants, Meeting House La Peckham.

REPAIRS, vulcanising, re-treading, a moderate charges; quick despat best work only (expert repairers); mo cycle covers from 13s.; tubes from 6s.; U versal detachable non-skids from 20s.—U versal Motor Tyre Co., Chestergate, Sto port.

HALIFAX.—Brand new inner tubes, b make, 26 by 2, 6s. 6d.; 26 by 2¼, 7s. by 2, 7s.; 28 by 2¼, 7s. 6d.; 28 by 2½, 8s. 6 genuine Calmon covers, with non-slipp tread, 26 by 2, 14s. 3d.; 28 by 2, 15s. 9d.; 28 2¼, 16s. 9d.; 28 by 2½, 20s. 6d.; all beaded ed —Halifax Motor Exchange, Westgate, Halif

24 by 2¼ Peter-Union Covers, 15s. ea 24 by 2½ Peter-Union covers, 15s. ea 23 by 2¼ Peter-Union covers, 15s. each; 26 2½ Peter-Union covers, 15s. each; 28 by Peter-Union covers, 15s. each; all guar teed; 28 by 2½ wired-on covers; approval; —Wauchope's, 9, Shoe Lane, Fleet Str London.

REPAIRERS.

IRIDIUM Champion "Indestructible" C tacts; any part fitted, returned sa day; 1s. 3d. each.

IRIDIUM Champion "Indestructible" C tacts; warranted pure; special tr mers for polishing iridium, 9d.; no filing quired.

IRIDIUM Champion "Indestructible" C tacts; hundreds in use.—Williams, Wellington Street, Woolwich.

RELIABLE Repairs.—Complete pistons, a make, from 6s., in 24 hours.—Gas Eng and Motor Works, Forest Hill, S.E.

£5 any motor cycle we cannot repair Whites, 22, Brooks Street, Chu Street, Liverpool.

METROPOLITAN Motor Co., Peckh Rye, S.E.—Overhauling and tuning experts; we undertake alterations of ev description.

BIRMINGHAM.—Repairs and overhaul accumulators charged and repair prompt attention; moderate charge Priest and Williams, 66, Bishop Street.

LEICESTER and County riders should l up the Central Motor Co., Lang Street, Belgrave Gate, Leicester, for repa tyres, accessories, and accumulator cha ing.

CCCCCCCC Compression means powe Cylinders re-bored and new pist fitted; guaranteed fit 4-1,000in.; bears 13 st on pedal; write for list.—Gradior Mach Co., Compression Specialists, Stafford.

CLAPHAM.—Cheap and practical repair motor cycles, etc.; overhauling replacements promptly carried out; cy ders rebored; accumulators charged.—Ca bell, 156, Wirtemberg Street, Clapham.

TO West of England Motorists.—Car motor cycle repairs, prompt and liable; cylinders re-bored, new pistons rings fitted; don't hesitate; send straight us.—Hamlin, Motor Works, Bridgwater.

DE DION, M.M.C., Excelsior repai prompt, and charges moderate; la stock of renewals and spares; engines verted from 2¾ to 3½, or exchanged; years' experience.—The Record Motor Coventry.

THE Leeds Motor Exchange are open all classes of repairs or replacemer Write, or telephone, 2262, giving your quirements; exhaust valves, cast iron he 2s. 6d.; send old valve or drawing to Leeds Motor Exchange, 28, Dock Street, Le

THE MOTOR CYCLE

Vol. 6. No. 272. CONTENTS. June 10, 1908.

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d per annum.

Standard Machines in Competition.

IN connection with open hill-climbing competitions and other open events which are so popular with motor cyclists, we think it is time some move was made to obtain for the benefit of the large majority of riders some more interesting data to go upon than is usually provided by the bare results on time or on formula. For instance, it would provide a considerable amount of genuine excitement if the organisers of an open event of any kind would intimate to manufacturers that they had been bold enough to appoint a sub-committee to select the machines from their stock on which their trade competitors could compete, and that these machines would be selected haphazard two or three days before the event and sealed. This would give sufficient time to tune up and get the machine into the normal condition in which it is delivered to a customer. It would be fitted with standard tyres, wheels, engine, and other parts, and would be a fair representation of the manufacturer's ordinary weekly output.

At present it is, unfortunately, rather the rule than the exception, particularly in hill-climbs where pure speed tells and weight is a great consideration, for trade riders to use special machines. No one will blame them if it can be done without protest, but a win on a special machine is not fair to others. Why not a special class for special machines?

Competitions, except local events which are confined to club members, are held partly for sport and partly to improve the breed. In some cases we are led to understand that they are organised entirely for the latter purpose. Then why should it be possible in such cases to use the same machines time after time and year after year, particularly when, as in some cases, the machines differ entirely from the standard patterns sold to the public.

There can be no improvement of the breed in such cases as are cited above, particularly when the weight is cut down to the absolutely lowest margin and machines are ridden which would not be suitable for ordinary touring conditions.

It is a matter of surprise to us that the officials at some of these events do not insist on machines being ridden which conform more closely to the standard articles sold to the public. It is not sufficient to propound a regulation that machines must be similar in detail to those sold to the public; it should be insisted on.

Town-to-town Records.

WE notice with regret that there is a tendency to gain advertisement out of town-to-town records on motor cycles, and we hope those responsible for the organisation of such performances will refrain from further exploits of this nature. Motor cycles are gradually but surely gaining popularity, many thousands ride them now, and many thousands more will do so every year, but it would be very regrettable if scorching between towns should cause restrictive legislation, as it undoubtedly will do if indulged in to any extent.

No record worthy of the name can be established without causing some inconvenience to other road users, and possibly danger. Against reliability runs like the A.C.U. End-to-end, where a reasonable speed is seldom, if ever, exceeded, or even the classical End-to-end record, we have nothing to say, because the

average speed is not excessive; but in regard to town-to-town records we desire our readers to clearly understand that in future we do not intend our pages to be used for the publicity of such events. Up to the present no harm has been done, and record-breakers have been few and far between, but it is the keen rivalry that ensues when record-breakers commence to pile up performances on different makes of machines that is likely to cause trouble.

We do not deny that we have given publicity in a certain form to long-distance rides while they were accomplished at what is practically touring speed, but now there are signs of the legal limit being greatly exceeded we have serious thoughts of refusing to devote any space whatever to anything of the kind again. However, we hope we shall not be called upon to do so, and that riders who wish to follow the path to glory, and makers and agents who assist them, will see that in letting short-distance road records severely alone they are studying the best interests of the pastime.

A.C.U. Sutton Bank Hill Climb. F. Applebee, jun. (5 h.p. Rex), using his foot as a pivot to assist him in rounding the bad corner.

THE 9 h.p. J.A.P. ENGINE.

SOME remarks have been overheard recently to the effect that a machine fitted with a 9 h.p. J.A.P. engine is a totally impracticable mount on account of the large cubical capacity of the engine. On a recent Saturday a 9 h.p. twin Bat with J.A.P. engine, rigid frame, and dual ignition, was seen at the Hut, Wisley. On this machine the ignition arrangements attracted special attention, the contact-breaker for the accumulator system being carried on an extension of the magneto shaft, while the coil was carried in a metal case on the front forks. The gas was generated in one of the new J.A.P. spray carburetters, which was so well adjusted that the rider was able to *walk* beside the machine with the engine firing. If such flexibility and smooth running can be obtained with so large an engine, it seems not only absurd but unfair that people who have not tried the machine should criticise it so adversely.

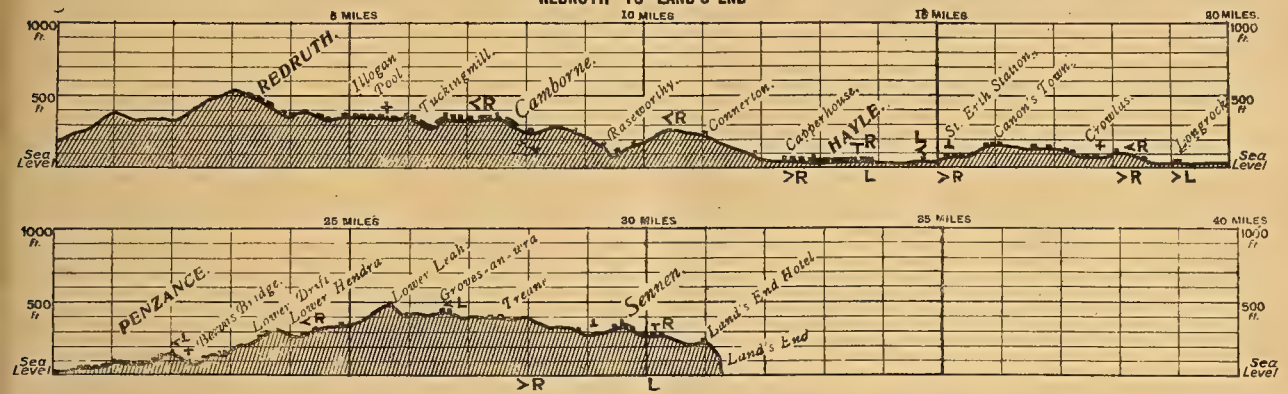
We do not recommend such high horse-power as a general rule, but if expert riders care to purchase a machine of this size we really cannot see why they should not. In fact, to dispel any ideas that there may be existent about the impracticability of one of these machines, we have arranged a trial run to take place shortly, when we may have an opportunity of criticising the machine from actual road experience.

At Saragossa (Spain), in the motor cycle race for the Centenaire prize, the three first arrivals rode machines fitted with Gaulois tyres.

The A.C.U. End-to-end Trial.

CONTOUR SECTIONS OF THE MOST DIFFICULT PORTIONS OF THE ROUTE.

REDRUTH TO LAND'S END



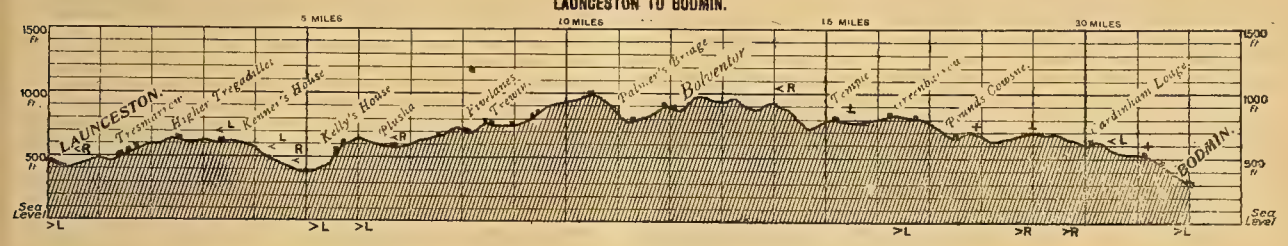
From the Contour Road Book, printed by arrangement with Messrs. Gall and Inglis.

GRADIENTS (†*Dangerous*).—At ¾m. 1 in 17; 4¾m. 1 in 13†; 5¾m. 1 in 19; 8¾m. 1 in 17; 11½m. 1 in 16; 14¾m. 1 in 18; 21m. 1 in 17; 27m., 27½m., and 27½m. 1 in 15; 28m. and 28½m. 1 in 10†; 30½m. and 30¾m. 1 in 14.

This, the start of the ride, is hilly, and consists of a series of short sharp ascents and descents varying in length and steepness. Near to Penzance there is a dangerous descent of 1 in 10. From Penzance to Hayle there is a magnificent surface. In the neighbourhood of Hayle the road is lumpy, and continues hilly through Camborne to Redruth. 27 miles.

After leaving Redruth the road branches to the left near Scorrier Gate Station, and is very undulating with fine surface to Zelah, thence poor to Mitchell, and good to Blue Anchor. The road then continues with few gradients of any steepness to Bodmin, where there are several rather severe gradients. 57 miles. *(The contours should be read from right to left.)*

LAUNCESTON TO BODMIN.

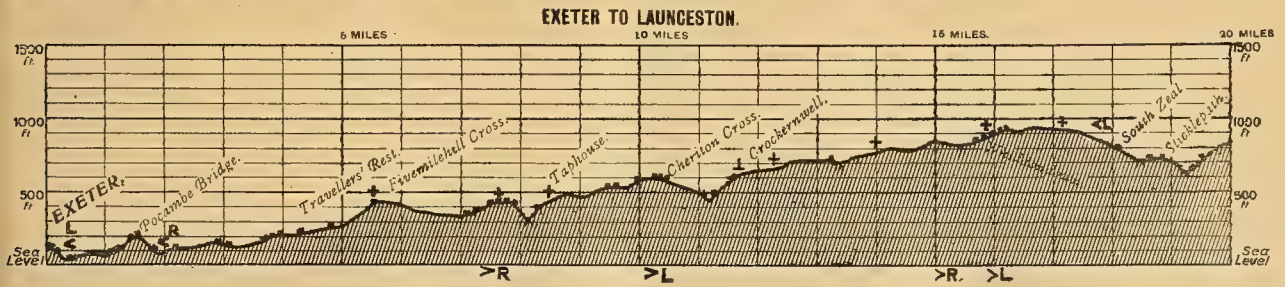


From the Contour Road Book, printed by arrangement with Messrs. Gall and Inglis.

GRADIENTS.— 4m. 1 in 19; 5½m. 1 in 16; 8¾m. 1 in 17; 11m. 1 in 12 (dangerous); 11⅝m. and 12¼m. 1 in 13; 14¼m. 1 in 17; 17½m. and 21½m. 1 in 13.

From Bodmin to Launceston the road is exceedingly hilly and rough in places; it goes over Bodmin Moor, and attains an altitude of 1,000 feet above sea level. The steepest gradient is about 1 in 12, that being near Bolventor. Launceston, 79 miles. *(The contour should be read from right to left.)*

EXETER TO LAUNCESTON.

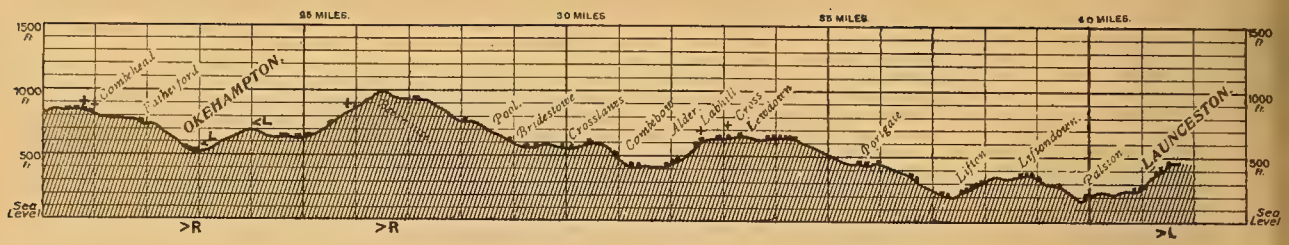


From the Contour Road Book, printed by arrangement with Messrs. Gall and Inglis.

GRADIENTS.—At ½m. 1 in 16; 1½m. and 1¾m. 1 in 11 (dangerous); 5¾m. 1 in 13; 8m. 1 in 15; 8¼m. 1 in 14; 11m. 1 in 15; 11½m. 1 in 14; 15m., 16m., and 18¼m. 1 in 17; 19¼m. and 19½m. 1 in 19.

This portion skirts the famous Dartmoor Forest, and has an excellent surface. There are, however, very many stiff to dangerous hills; gradients of 1 in 11 and 1 in 13 frequently occur. The most trying rise is one of three miles, from 500 to 1,000 feet above sea level, starting at Bridestowe. Exeter, 120½ miles.

The road after Exeter becomes easier, and the famous old coach road from Exeter to Bristol *viâ* Cullompton, Wellington, and Taunton is entered upon. There are few hills, and the surface is excellent. Owing to the density of traffic and the innumerable tramlines that infest the city of Bristol, it is a difficult place to get through; a good deal of tramline can be avoided by going over Clifton Down.

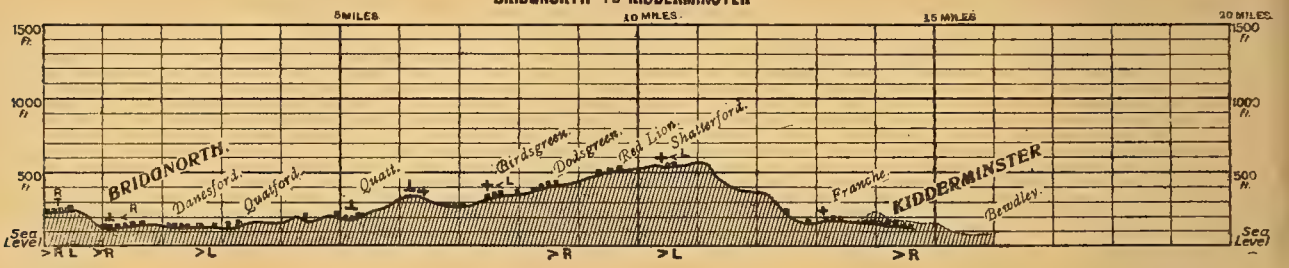


From the Contour Road Book, printed by arrangement with Messrs. Gall and Inglis.

GRADIENTS.—22½m. 1 in 17; 23½m. 1 in 20; 24½m. 1 in 17; 25½m. 1 in 15; 29m. 1 in 19; 31m. 1 in 14; 32½m. 1 in 17; 35m. 1 in 23; 36½m 1 in 17; 37¾m. 1 in 19; 39¾m. and 41¼m. 1 in 13.

The road from Bristol to Gloucester is very good indeed—in fact, all the way to Birmingham, but at Worcester the record route branches off to Ombersley and Kidderminster. Here there are one or two sharp pitches. Kidderminster, 271¼ miles. *(Contours should be read from right to left.)*

BRIDGNORTH TO KIDDERMINSTER



From the Contour Road Book, printed by arrangement with Messrs. Gall and Inglis.

GRADIENTS († *Dangerous*).—At 1m. 1 in 12; 1¾m. 1 in 16; 3½m. and 4m. 1 in 15; 4¼m. and 6m. 1 in 16; 7¼m. 1 in 22; 11½m. 1 in 17; 12½m. 1 in 12†.

After Kidderminster there is a steep hill between Franche and Shatterford, which rises for nearly two miles, and requires a powerful machine to negotiate it owing to the bends. The surface is good, but this section is more or less hilly all the way to Bridgnorth. 284¾ miles.

From Bridgnorth to Wellington the road is not level, but there are few hills of any consequence, except the long rise from Madeley to Lawley Bank, averaging about 1 in 30. After Wellington the country is flat through Whitchurch, Tarporley, and Warrington to Wigan, 364½ miles. Preston, 381¾ miles, and Lancaster, 403¼ miles; after Preston there are one or two hills on the way to Kendal, 424½ miles, and then begins the pull over Shap, with a long run down on the other side. The summit of Shap is about 1,400 feet above the sea. The road continues through Penrith to Carlisle, 469 miles. *(Contours should be read from right to left.)*

(To be continued.)

R. M. Brice (3½ h.p. Brown) starting in the Sutton Bank Hill Climb, May 30th. He won Class II., for machines with engines not exceeding 82 mm. bore.

OCCASIONAL COMMENTS.

By "IXION."

The Twin-cylinder Puzzle.

The owner of a 6 h.p. Jap engine writes to tell me he has experienced precisely the difficulty I detailed on page 333, and remedied it entirely by tilting his carburetter slightly on the frame, so as to raise the level of the petrol in the jet, the engine promptly returning to smooth and cool running with full power.

A Smart Accessory.

Readers will remember my saying last year until we were given a compartment in the tank wherein to carry our acetylene generators, the only good position for it was on a tongue bracket cast integrally with the front clip, securing the tank to the top tube of the cycle. I have received such a clip, embodying a tongue bracket for the generator, from the Advance Motor Company, Northampton, and they inform me they also make a pattern with tongue at each end, so that two generators can be snugly carried one on each side, like holsters. This device should interest the night-riding fraternity, and more especially any who have End-to-end or London to Plymouth aspirations. The clips are slotted for the tank screws, and provided with a setscrew pressing on the top tube, so that they will fit practically any cycle on the market without alteration.

Diagnosis.

An experienced motorist of my acquaintance was bewildered by the chronic misbehaviour of his engine during a recent run. He could find nothing wrong, although he knew the machine by heart, and yet it would do everything except fire regularly and powerfully, and he finally abandoned all attempts to solve the mystery by the roadside, and made the best of his way home. It then transpired that when he had asked his younger brother to fill the petrol tank that morning, a can had been used which had been opened for ten months. Not only had it been open, but its contents had been poured into a pannikin whenever a cleaning job was on, and had become well diluted with oilwater and filth, till they were more like peasoup than petrol. None the less the engine both ran and pulled on the nauseous mixture. This is highly to the credit of the carburetter used.

Petrol Filters.

I see very few machines fitted with petrol filters, and there is no doubt they are well worth their cost to any rider not afflicted with the microbe of tinkeritis. I personally enjoy taking down my carburetter every thousand miles or so, but the majority of riders do not, and dirty petrol and inefficient funnels are a feature of every long ride. End-to-end entrants would do well to employ petrol filters. In 1906 several riders had as many as six stops in a day from choked jets alone, and the carburetters are not yet exclusively fitted with separately detachable jets, nor does the detachable jet quite cover the difficulty, as if there is a teaspoonful of mud in the float chamber the jet will need cleaning again in a few miles, and it is not constructed to be hurriedly unscrewed by a bad-tempered man seven times in a day, as I have found to my cost before now. I don't know how it is, but, though I invariably use a finely screened funnel to fill the tank through, the catchpot of my filter always contains a goodly assortment of rubbish when I examine it.

Belt Fasteners.

Overhauling my stock of spares and accessories on a wet day recently, I dug out some two dozen belt fasteners of various sizes, shapes, and patterns, and so fell to moralising on what a perfect belt fastener should be. Ideally I must say there is nothing to touch the Watawata common wood screw; you can get it anywhere, it costs nothing, it's the easiest to put in or take out, and it does not create a stiff patch in the belt. But no other belt lends itself to this, and the commonest type is that now standard for rubber belts. Among my collection are samples cracked across the jaws, and samples cracked across the hook; samples with stripped threads; others buckled out of shape, others worn right through at the link, and so forth. Out of my reflections I evolve the following desiderata for such a fastener:

1. Loose link (*i.e.*, hook joint, not permanent link).
2. Broad bearing for hook.
3. Thick endplates of good tensile strength, to avoid cracking, and to give room for plenty of screw threads.

(4. If for use with adjustable pulley, it should be adjustable so as to correct belt length.)

Wanted, a Front Wheel Stand.

With so many energetic accessory firms working the market for all it is worth one scarcely expects to find obvious gaps, and I think the absence of a front wheel stand is simply due to the comparative rarity of front wheel punctures. Without such a stand the repair of such a puncture is not easily accomplished. You extract the portion of tube where the puncture is from the cover and mend it; if the whole of the beaded edge has not been taken out you can turn the wheel till that part of the tyre which has both lips still in the rim is next the ground, and the rest of the job will be quite safe. But if all of the beaded edge has to come out of the rim before the hole is located you are confronted by a dilemma; either you must replace part of the cover with the tube uninflated, or else you must blow the tube up partially and let the weight of the cycle rest upon it while it is not corseted by the cover. Neither alternative is safe. My own plan is wherever possible to find a stone and lay it under the crank case so as to lift the front wheel clear of the ground. Failing this, I begin by replacing ten or twelve inches of the cover, and turn the wheel till this part of the cover rests on the ground; I then put the usual few pumpfuls of air in the tube, replace the rest of the cover, put in a little more air, turn the wheel round, and test the ten or twelve inches of cover first inserted for nipping. But the fact remains a front tyre repair is far more comfortably and easily accomplished with the aid of a stand.

A spare air tube carrier introduced by the Premier Motor Co., Ltd. Before placing in the carrier, the tube should be coiled up compactly in flannel or baize; it is then free from chafing.

QUESTION & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

The Vagaries of the Police.

I started on a slope with clutch out and was summoned for driving a motor to public danger. Now the engine had not fired once (and P.C. admitted it), and I might as well have been riding a push bicycle. Why should my license have been endorsed?—A.P.C.

The ways of the police are strange and wonderful, and we are not surprised to hear that the magistrates have endorsed your license. On conviction, according to the Act, your license may be endorsed for any offence you commit.

Four-cylinder Motor Bicycles.

(1.) Please say if there are any other well-known makes of four-cylinder motor bicycles besides the F.N. and Durkopp? (2.) Who is the English agent for the Durkopp machines? (3.) Are four-cylinder machines satisfactory, especially as regards wear? (4.) Are they made with a magneto? —R.H., Aldershot.

(1.) We do not know of any, the F.N. is the best known. (2.) The agents for the Durkopp machines are the Service Motor Co., 292, High Holborn, W.C. (3.) The latest patterns of the F.N. four-cylinder machines are quite satisfactory in every way. (4.) Magneto ignition is fitted.

Knocking in Engine.

I am riding a 1907 3½ h.p. Triumph motor bicycle, and it knocks very badly. Could you tell me why? I have just put in a new piston ring, and it stops dead after running a few miles. Do you think the ring is too tight, as my engine gets very hot? I am using Wilburine oil for the engine, and had a new fibre ring fitted and carburetter cleaned. The cylinder and piston head are quite clean, also the plug and contact breaker.—C.A., Yorks.

If you have fitted a new piston ring probably it is too tight a fit and is causing trouble. It would be best to take the engine down and see if there is any play in the gudgeon pin or the crank pin. Some machines are slightly more inclined to knock than others, but the knocking may often be cured by keeping the spark fairly well advanced, and by shutting off the air when the knocking begins.

Water Circulation on Tricar.

Will you please tell me if the thermo-syphon circulation on my Humber tricar is correct? The hot water from top of cylinder jacket enters bottom of water tank, and runs through a tube to within an inch of top of tank, so that when the water is 2in. down I cannot see how there will be a syphon. It makes a lot of steam. Will it not work better if this tube is taken out so that the water will enter at the bottom of water tank?—J.H.

The circulation system is correctly arranged, but unless the water covers the top of the delivery pipe the circulation will not work, and special care must be taken to see that it is covered. Probably you will find that if you increase the length of the gilled tubing and fit a larger tank the engine will keep cooler.

Deposit in Water Pipes. Lubrication of Gear and Engine.

(1.) Is there a compound sold to prevent deposit in water jackets? Would sal ammoniac do? Is this chemical injurious to copper or castiron? (2.) What lubricant is best for the Roc clutch and speed gear fitted to the Rex Litette? How often should it be oiled? (3.) How often does the engine on this tricar (water-cooled) require a pumpful of oil?—H.H.B.

(1.) Various compounds are sold to prevent deposit in water jackets, etc. To thoroughly scour out water jackets there is nothing better than a strong solution of washing soda. (2.) Grease is best for variable gears, as oil has a habit of finding its way out and bespattering every part of the machine. Refill every 250 miles or so. (3.) Every five miles and oftener if the low gear is being used a good deal.

A.C.U. Hill Climb. The winner of Class III., J. Marshall (3½ h.p. Triumph), on his upward flight.

Improving Compression.

Having ridden my new machine for over 1,000 miles I want to remove the cylinder to scrape away the carbon deposits. At the same time, as the compression is slightly weaker, I propose grinding in the exhaust valve. Kindly tell me how to proceed?—NOVICE.

To remove the cylinder first study the maker's catalogue, as by removing certain parts it is generally possible to take off the cylinder, leaving the remainder of the engine in the frame. To grind in the exhaust valve provide yourself with some flour emery and lubricating oil, a long screwdriver, and a ball of waste to put in the cylinder to prevent any of the emery falling inside and doing damage. Tie a piece of string around the waste, and when grinding operations are completed withdraw the waste, and any traces of emery should come away also. Obviously, this is only necessary when the valves are ground in without removing the cylinder. It will, of course, be necessary to remove the spring and cotter, then smear the valve seating with a little emery and oil. Insert the screwdriver through the valve cap in the slot provided in valve head, and work the valve backwards and forwards under pressure, occasionally lifting the valve to prevent scoring. The grinding should be continued until all traces of pitted marks have disappeared.

Attention to Engine after 800 Miles.

I have now covered some 800 miles on my 1908 magneto motor bicycle without trouble, and should be glad to know what attention to it is now necessary. There is only a slight falling off in power, and I think this will be restored when I have removed the cylinder and scraped away the carbon deposits. The only thing I have done to the machine at present is to shorten belt (twice) and draw off the oil every 300 miles and inject clean oil.—S.E., Derbyshire.

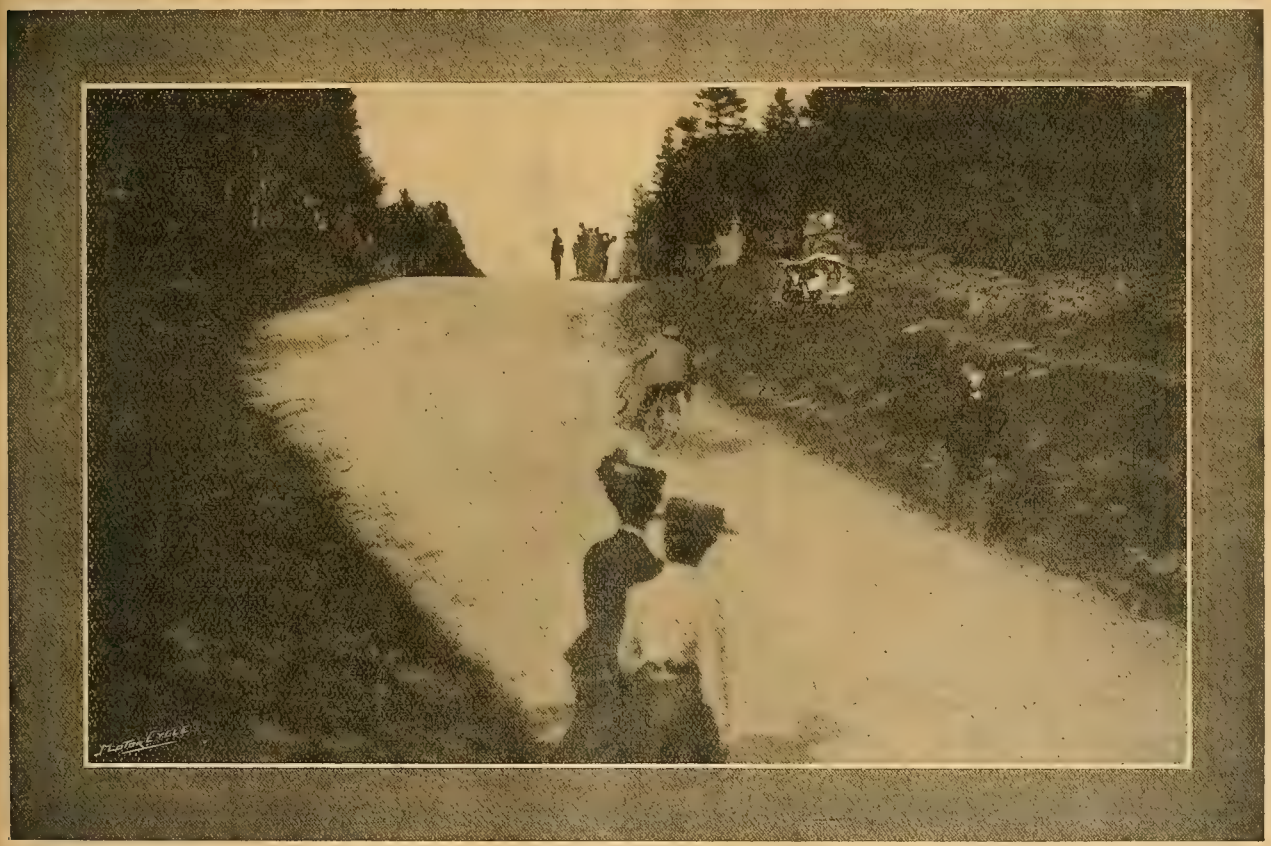
After 800 miles it is necessary to scrape away all carbon deposits, and if the compression has become weaker grind the exhaust valve on to its seating. The crank chamber should also be swilled out with paraffin. Empty all the oil out of the crank chamber, disconnect the lubrication pipe, put an eggcupful of paraffin into the crankcase, and let the machine stand overnight. Next morning pedal vigorously with the exhaust valve raised, then open the drain tap and repeat the operation until the paraffin runs out clean. Then put four charges of oil in the crank chamber and start up the engine. The magneto oil reservoirs should be drained and also swilled with paraffin. The carburetter passages, spray, and feed pipe should also be thoroughly cleaned. If the platinum contacts of the magneto are black and pitted, use a fine file to trim them and remove any traces of oil.

READERS' REPLIES.

With reference to "J.F.M.'s" query as to restoring life to an engine, I have in my possession an identical machine which developed similar defects. On close examination I found as the chief cause of the trouble the insufficient lift of the valves. Remedy, use caps between valves and tappets. The magneto on the 4 h.p. Antoine is generally the low tension type by Gerard, and which in "J.F.M.'s" case probably wants rebushing.—F.M., St. John's.

Re answer to "S.H.," Herefordshire. I had a case of misfiring on a Minerva which was due to the twisting handle control. The handle had pulled the screw a little bit out from the inside of the handle-bar, and consequently there was not a perfect electric communication between the insulated screw and the metal handle-bar. Another case was due to the cam of the make and break working loose on the pinion.—P.S.W.

I notice in a recent issue one of your readers suggests taking out the gudgeon pin setscrews, reducing the length of the gudgeon pin at each end, and fitting copper washers in the recesses so made. I should like to point out that I did that twice to a machine I had, with the same result in each case, viz., that the gudgeon pin, although a tight fit when inserted, worked loose, and necessitated a new piston in less than 300 miles.—C.M.



The gradient of Sutton Bank, near Thirsk, averages 1 in 9 for nearly one mile. This photograph, showing J. Scriven topping the hill on a twin Rex, conveys an excellent impression of the severity of the last portion of the climb.

Another view of the hairpin corner, half-way up Sutton Bank. It proved the undoing of several of the competitors.

A WORD OF ADVICE.

NOW that long distance police traps are being worked in Sussex and other counties, motor cyclists will do well to study their maps carefully, so as to find roads running parallel to the main roads which are totally free from police interference. Many a pleasant day may be spent in discovering new roads, but care should be taken to consult previously a map upon which the roads are accurately and clearly marked. The importance of this was impressed upon us the other day when trying to discover a new road to the south coast. The map before us showed a road which ran directly to within a few miles of the sea. After some difficulty, an excellent and exceedingly pretty road was found, but, at the point where it met the downs, the road suddenly disappeared altogether and ended in a mere cart track with deep ruts. Just before this point, however, a good main road was found leading to a well-known seaside resort nine miles away. Had a good map been consulted, the mistake would not have been made, as, on referring to the Ordnance Surveys of Brighton and District, sheets 88 and 97, scale two miles to the inch (which may be obtained from most booksellers or from the Ordnance Survey Offices, Southampton), the exact spot where the macadam ends and the grass track begins is clearly shown. For obvious reasons we shall not publish any of these roads in *The Motor Cycle*, but we should recommend motor cyclists to look out for them themselves, and this they will undoubtedly find to be worth their while.

cene at the foot of Sutton Bank, Yorkshire, on the occasion of the A.C.U. Open Hill Climb, on the 30th ult.

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"I have just heard of Mr. F. Newton's wonderful performance on Palmer Cord Tyres. It proves these to be on cars just what I have found them on a motor cycle—simply incomparable.

"I ride all days and in all weathers, and tyre troubles were the bane of my life till I got Palmer's Cords. Now I can ride for months without re-inflating.

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Signed (Rev.) J. RAMSEY."

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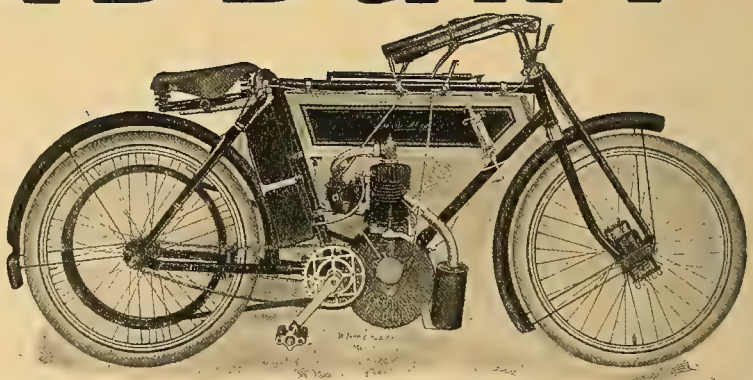


AWARDED 17 GOLD MEDALS IN RELIABILITY TRIALS.

2¼ h.p., £25; 3 h.p., £32; 3½ h.p., with spring fork attachment, £40.
4½ h.p. Motor Fore Car, open frame, water cooled, two speeds, free engine £85.

PRICE LIST AND NAME OF NEAREST AGENT ON APPLICATION TO DEPARTMENT M.

Bradbury & Co., Ltd., WELLINGTON WORKS, Oldham.

Being the opinions of medical men who are actual or prospective users of motor cycles.

(*Continued from page 399.*)

W. H. Moorhouse, B.A., M.D. (London, Ont., Canada.

Although I have read your very interesting journal, *The Motor Cycle*, for the past two or three years, I have never been a user of the motor cycle, as they have not yet come into common use in our country, but from what I have been able to read and hear I think they must be a source of great pleasure and enjoyment to the users. I am expecting to take a trip to your country in the near future, when I shall look more carefully into the matter and make a selection.

W. Winterville, M.D.

(1.) I consider motor cycling an eminently healthy pastime. (2.) I find it of the greatest service (more particularly from May to November) in rapidly, and with a minimum of fatigue, getting from place to place in the discharge of my professional duties. (3.) The cost per mile I believe to be less than that of any other mode of locomotion except walking and pedal cycling, with, of course, much saving of time and labour as compared with these.

A Newark Doctor.

A Newark doctor writes: (1.) I warmly advocate motor cycling, as not only is it healthy for one's body, but the care needed in keeping the machine efficient is a hobby which acts as a relaxation from business, etc. (2.) I have owned a car, and last year I rode a Triumph and ran four thousand five hundred miles. I had one puncture and no mechanical stops. I sold it in January, 1908, and bought another Triumph. I use my motor cycle in all weathers and at night. The only drawback is mud in winter, causing one's legs to get dirty. (3.) I keep a horse and groom for town work, which costs £180 a year. The motor cycle does ten times the distance, and costs approximately £26 a year. (4.) 3½ h.p. magneto most certainly, low built, and handle-bar control because of skidding when hands are off handles. Any h.p. above this is not so easy to handle. For winter a considerably lower gear is required, 5 to 1 or even 5½ to 1, as speed is not required and freedom from skidding is.

Dr. T. B. P. Wilkinson, whose opinions were given on page 353 of May 6th.

H. J. Walker, M.R.C.S., L.R.C.P.

Having had four years' experience with motor cycles, first of all with two bicycles, and for the last twelve months with a tricar (Phœnix-Minerva), I have come to the conclusion that there is no sport to equal it for a doctor because he is so easily able to get into the country and away from his surroundings, which not only invigorates the body but the mind also. I do not consider motor cycling fit for professional work in towns, but should think in the country it is a great boon to doctors, and even then should recommend a tricar with a water-cooled engine. As a sport I consider motor cycling inexpensive if one starts with a good machine and understands how to look after it.

J. A. Manton, M.R.C.S., L.R.C.P., etc.

(1.) Employed with average commonsense motor cycling is a splendid sport and health-giving pastime. (2.) In bad weather horse and trap still essential, but if roads are decent the saving of time is very large indeed. I work an extremely wide-spreading round in a very hilly district. (3.) Cost infinitesimal as compared with motor cars, and a fraction of the cost of horse and trap. (4.) Heavy machines are useless to a doctor. Patients object to perspiration, gymnastics, and dirt. Heavyweights useless to middle-aged men, to whom the risk of heart strain is very serious. I am middle-aged, and I've tried cars, tricars, motor tricycles, etc., etc., and heavy-weight motor cycles in vain. I find a Motosacoche with spring fork almost perfection. If an extra half horse could be got in the same weight, which is, of course, asking a lot, it would be absolute perfection. As it is, it will go anywhere uphill or down hill, but occasionally requires light pedal assistance.

Stephen G. Longworth.

From six years' experience of motor cycling in its various forms I believe it to be healthful. I have found it an excellent promoter of appetite and sleep, and *par excellence* as a means of blowing away mental cobwebs. My work having been for some years confined to an institution, I use my machine chiefly for recreation, but from a limited experience of general practice I most certainly decide in favour of the three-wheeler, something on the lines of that in the accompanying photograph, and for the following reasons: Stability, ease of starting, moderate speed, two-speed gear, belt drive, comfort, and protection from mud, necessitating no special clothing.

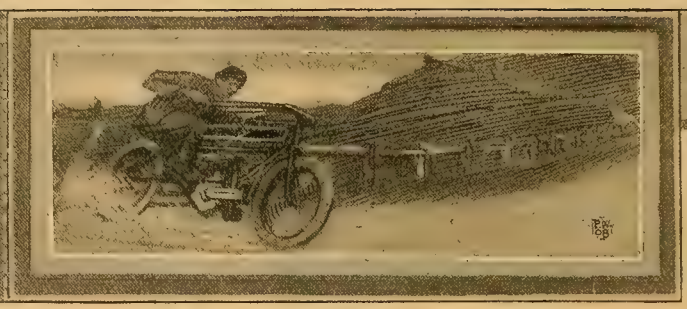
Dr. S. G. Longworth

Norman Hughes, M.R.C.S., L.R.C.P.

(1.) From a health point of view there is nothing more invigorating than a sharp spin through the air on a good motor cycle. You are compelled to fully expand the lungs by filling them with fresh air; it makes one alert, observant, and creates a healthy appetite. (2.) To a country practitioner, who is strong and young, a motor cycle is indispensable as a speedy, efficient, and economical means of getting round his practice. (3.) Horse and trap and man cost at least 28s. per week. My motor cycle expenses run me at 2s. 6d. per week, including petrol, oil, and repairs. Depreciation in value would be the same as in horse and trap. (4.) A reliable 3 to 3½ h.p., gear about 5 to 1, magneto, weight about 150 lbs. The 1908 Triumph embodies my ideal.

(To be continued.)

CURRENT CHAT.



Special Features

M.C.C. London-Edinburgh 24 Hours' Run (Fully Illustrated).

Contour Sections of the A.C.U. End-to-end Trials.

A Trap in Warwickshire.

We are advised of a new police trap halfway between Banbury and Southam.

Police Trap at Darlington.

Several well-known North country motor cyclists were fined a few days ago for covering a short-measured stretch in Darlington at speeds of nineteen and twenty miles an hour.

The M.C.C. Team Competition.

Everything points to this year's competition for *The Motor Cycle* Challenge Cup being even a greater success than in previous years. Eight clubs have already expressed their intention of entering a team to compete for the trophy. We should strongly advise secretaries of clubs to get their teams together without delay, as the organisers inform us that it is just possible that if there is a sudden rush at the last moment, entries will have to be refused owing to lack of accommodation at Daventry and difficulty in organisation. The Motor Cycling Club is anxious to make the affair successful, and would like to receive definite entries immediately, even if the names of the members forming the team are sent in a little later. The name and address of the Trials hon. secretary is Mr. J. Van Hooydonk, Spring Villa, High Road, North Finchley, N.

Red-hot News.

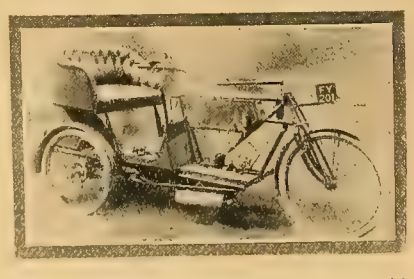
A correspondent who prefers to remain anonymous informs us that some days ago a few motor cyclists were discussing the overheating question. One of them stated that he possessed some years ago a certain make of engine, the cylinder of which occasionally got so hot that the piston could be seen moving up and down owing to the transparency produced by the red hot iron. No one seemed to believe him.

The Second Race Meeting at the Stadium.

We have to announce that on June 13th, at 3 p.m., an athletic meeting will be held by the Essex Beagles at the Stadium, Shepherd's Bush. The list of events now before us includes one motor cycle race, placed at the end of the meeting. It seems a great pity that whenever an athletic meeting is held the motor cycle event is always placed at the very end, when most of the people have gone away, and only a few enthusiasts remain. That is what happened on the occasion of the first meeting at the Stadium last month, when we commented strongly upon the treatment of motor cycle events. Motor cycle racing is a draw at a race meeting, and should be accorded a better position in the programmes.

A Passenger Motor Cycle.

The photograph reproduced herewith depicts a tricycle with seats side by side owned by Dr. A. A. Bradburne, of Southport. The engine is a 4 h.p. air-cooled Antoine. The transmission is by chain, and there are two speeds actuated by a clutch and a hand lever working a dog clutch. There are two band brakes on the back wheels operated by foot and hand lever, and also a front rim brake. We are told that the machine has proved very satisfactory, and will climb most hills on the low gear. Its top speed is about thirty miles per hour.



FUTURE EVENTS.

June 13—Essex Beagles Ten Miles Motor Cycle Handicap at the Stadium.
" 20—Entries close for M.C.C. Team Competition at Daventry.
" 20—Barnsley Victoria C.C. (Motor Section) Open Hill-climb for Motor Cycles.
" 24—London United Tramways Five Miles Tourist Motor Cycle Handicap at the Stadium.
" 27—M.C.C. INTER-TEAM TRIALS for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective Competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., Birmingham M.C.C., Lincolnshire M.C.C., Liverpool M.C., North West London M.C.C., and Sheffield and Hallamshire M.C.C.
" 27—Motor Cycle Union of Ireland Inter-centre Contest for the Triumph Cup.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 6-7—A.C.F. Grand Prix Races for Cars.
" 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
" 14-15—M.C.U.I. (Ulster Centre) Open 400 Miles Reliability Contest.
" 25—Motor Cycling Club Petrol Consumption Tests.
Aug. 8—Essex M.C. Open Race Meeting at the Stadium.

Petrol Spirit in One Gallon Tins.

Why the large wholesale petrol merchants and refiners do not send out sealed tins containing one gallon as well as two gallons of spirit we cannot understand. The smaller cans would very often be of great service to motor cyclists, as retailers frequently refuse to open a tin to supply less than two gallons. Tins of this size would be welcomed by motor cyclists.

An Unsuccessful Action.

A provincial journalist, Arthur W. Jarrett, of Willans, near Tiverton, was last week summoned at the Cullompton Police Court by Charles Hutchings, labourer, of Silverton, for riding a motor cycle in a dangerous manner on the highway. Defendant pleaded not guilty. Complainant stated that he met a motor lorry on a narrow road, and the defendant, who was coming behind the engine, failed to allow him to pass the lorry first. The result was that all three met and passed each other at the same time, and he (complainant) was obliged to run into the hedge. Defendant said he had ridden a motor cycle for five years, and he submitted that this was an unnecessary and vexatious prosecution, and to call it a motor offence was a misnomer. It was impossible for him to give the defendant more room than he did, and he did not see the complainant until he came out from behind the lorry. He could not pedal backwards, and he dared not stop. The magistrates dismissed the case.

Oxford v. Cambridge Motor Cyclists.

The inter-varsity hill-climbing competition which was to have been held at Sharpenhoe Hill on the 30th ult. cannot take place, as the County Council of Bedfordshire has refused the necessary permission.

A Strange Request.

We often receive strange requests which are difficult to comply with, but we have never been asked before to establish agencies in England for a well-known make of motor car. Such a request, however, has just reached us in the form of a circular letter addressed to the Editor, *The Motor Cycle*, London. This explains that owing to the American crisis the Léon-Bollée firm are compelled to extend, the United States and France having previously absorbed the output.

M.C.C. London to Edinburgh Run.

Mr. S. F. Edge, who for the first time did not assist in starting the men at Highgate, was absent through pressure of business, and his place was taken by Mr. G. F. Sharp.

An Enterprising Firm.

The Gaslight Improvement Co., Ltd., the vendors of the well-known Carburine motor spirit, had a van load of petrol at Highgate, and another van with fuel on board at Edinburgh, in the early hours of Monday morning.

The Ever-present Trap.

Through the courtesy of a correspondent *The Motor Cycle* was able to warn the competitors of a trap in the Morpeth district.

Low Numbers for Motor Cycles.

We are informed by the London County Council that all numbers under 3,000 of the new L.C.C. registration letters are reserved for motor cycles.

A.C.U. Land's End to John-o'-Groat's Trial.

The time fixed for this event, July 13th to 18th, is drawing near, and entrants are making their final arrangements to enable them to compete. It is hoped that all who intend to take part in this trial will carefully read the conditions beforehand; for instance, the question of the use of cut-outs has been raised, but it distinctly states on page 8 of the preliminary regulations that "no cut-outs are to be used, and, if fitted to the machine, they must be closed and sealed so that they cannot be used." The following entries have been received up to the present: W. H. Wells, 5 h.p. Vindec Special; Walter Ridler, 6 h.p. Leader; E. Nelson, 5 h.p. Rex; J. Tassell, 3½ h.p. Matchless; Gordon Gibson, 3½ h.p. Triumph; F. Dover, 3½ h.p. Triumph; F. S. Barnwell, 3½ h.p. Rex; Dr. H. R. Mayo, 5 h.p. Vindec Special; I. B. Hart-Davies, 3½ h.p. Triumph; M. Geiger, 6 h.p. N.S.U.; T. F. Cox, 7-8 h.p. Minerva; W. H. Bashall, 3½ h.p. Triumph; M. W. Randall, 10 h.p. Lagonda tricar; F. C. Mustard and C. E. Murphy, 3½ h.p. Triumphs.

The M.C.C. Membership.

The Motor Cycling Club now heads the list of social motor cycling clubs with a membership of 274. A rapid increase in the membership during the last few weeks is, of course, due to the London to Edinburgh twenty-four hours' run, which has once more proved to be a most successful event despite the difficulty of handling large numbers.

Whit Monday Racing at St. Albans.

The five miles invitation handicap race was won by D. R. Clarke (2¾ h.p. Century-Givaudan), A. Tyler (2 h.p. Chater-Lea) being second, and J. Smyth (2¾ h.p. Rex) third. Time, 7m. 25s. Five entered for the five miles touring machine handicap, C. Reid (3 h.p. Century) finishing first, and S. Collier (3 h.p. Century) second. Time, 7m. 44s. Result of the five miles invitation scratch race.—1, H. V. Colver (2¾ h.p. Matchless); 2, D. R. Clarke (2¾ h.p. Century); 3, J. Smyth (2¾ h.p. Rex). Time, 6m. 22⅖s.

Echoes of Sutton Bank.

Owing to the length of the course and the numerous turnings which it contained, one or two errors have unfortunately crept into our report of the hill-climb held at Sutton Bank on the 3rd inst. Mr. W. E. Grange informs us that his 3½ h.p. Triumph climbed the hill successfully, whereas it was stated in our report that he had dismounted. In Classes 5 and 6, Mr. F. Scriven's name is unfortunately given in place of that of his brother, Mr. Jack Scriven. R. G. Bell, the rider of the Moto-Rêve, did not dismount at the corner—he unfortunately fell. Bell was travelling at a good speed at the corner, but when negotiating it the back wheel of the machine skidded from under him. Considering that the machine had the smallest engine of all those competing, the fact that it got as far as the corner is a point distinctly in its favour. In Class 2 the difference between R. M. Brice (3½ h.p. Brown) and F. Scriven (3½ h.p. Rex) should have been 30⅕s., not 3⅖s.; the latter was a misprint.

St. John's C.M. & A.C.

The results of the two motor cycle races at Tunbridge Wells on Whit-Monday, promoted by the above association, were:

Three miles scratch race.—1, C. E. Bennett (Mansfield 76 by 73); 2, F. E. Barker (Rex 75 by 75); 3, H. Martin (J.A.P. 85 by 60). Time, 4m. 56s.

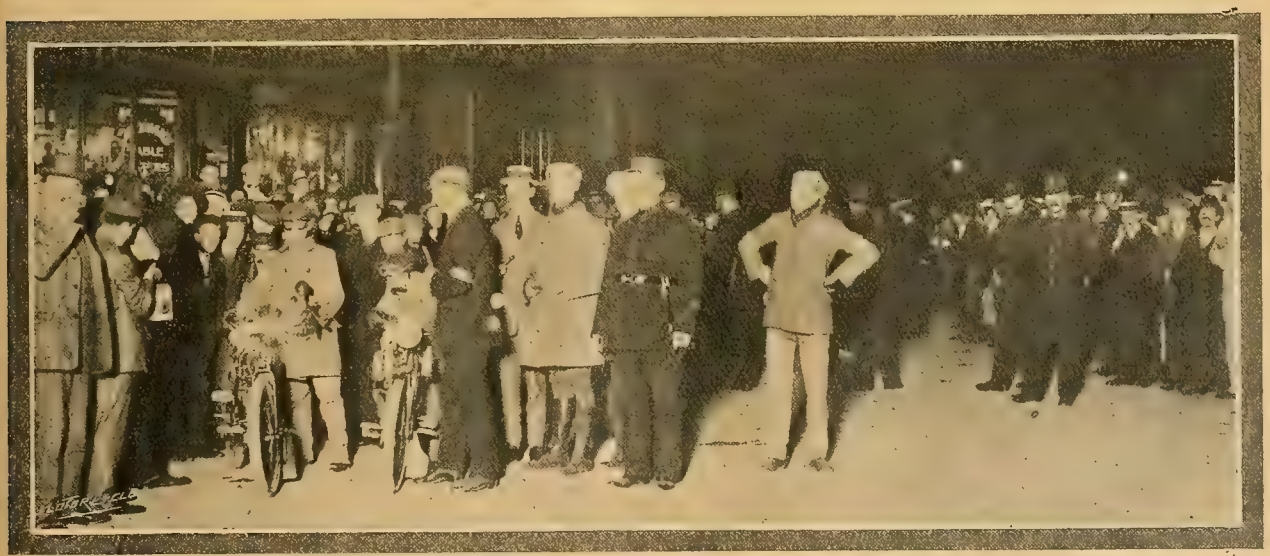
Five miles handicap (handicapper F. Straight, A.C.U.)—1, A. White (Dart 70 by 86); 2, H. Martin (J.A.P. 85 by 60); 3, F. E. Barker (Rex 75 by 75). Won easily amid loud applause. Time, 7m. 48⅗s.

Barnes versus Olieslagers.

On Thursday evening of last week Geo. A. Barnes, mounted on his new 14 h.p. Peugeot racer, met Olieslagers on the Velodrome Buffalo, Paris. Barnes beat the Belgian at his own speciality—quick starting—and quickly assumed a twenty yards lead, but not having had any track racing experience for eighteen months, he was at a disadvantage; moreover, he is not yet able to get the best out of his new racer. Olieslagers won the race by about thirty yards. The rivals have now met on two occasions, and a win stands to the credit of each.

International Auto Cycle T.T. Race.

There is every probability that the International Auto Cycle Tourist Trophy Race will be held before the end of September, instead of October, as originally suggested, and intending entrants will be well advised to get their machines in Tourist Trophy trim without delay. They will thus have plenty of time in which to practise, so that they may be able to get the best speed on the quantity of fuel allowed, which will this year be as follows: Single-cylinders, one gallon per 100 miles; multi-cylinders, one gallon per eighty miles. The entries received up to the present are: H. Collier and Sons, Matchless (1); H. Rem Fowler, Norton (1); Triumph Cycle Co., Ltd., Triumph (3); T. H. Tessier, Bat (1); W. H. Wells, Vindec Special (1); and Robert W. Ellis (1).



Flashlight photograph of the start of the London-Edinburgh ride. Nos. 1 and 2—S. G. Frost and S. Webb—waiting for the word to go.

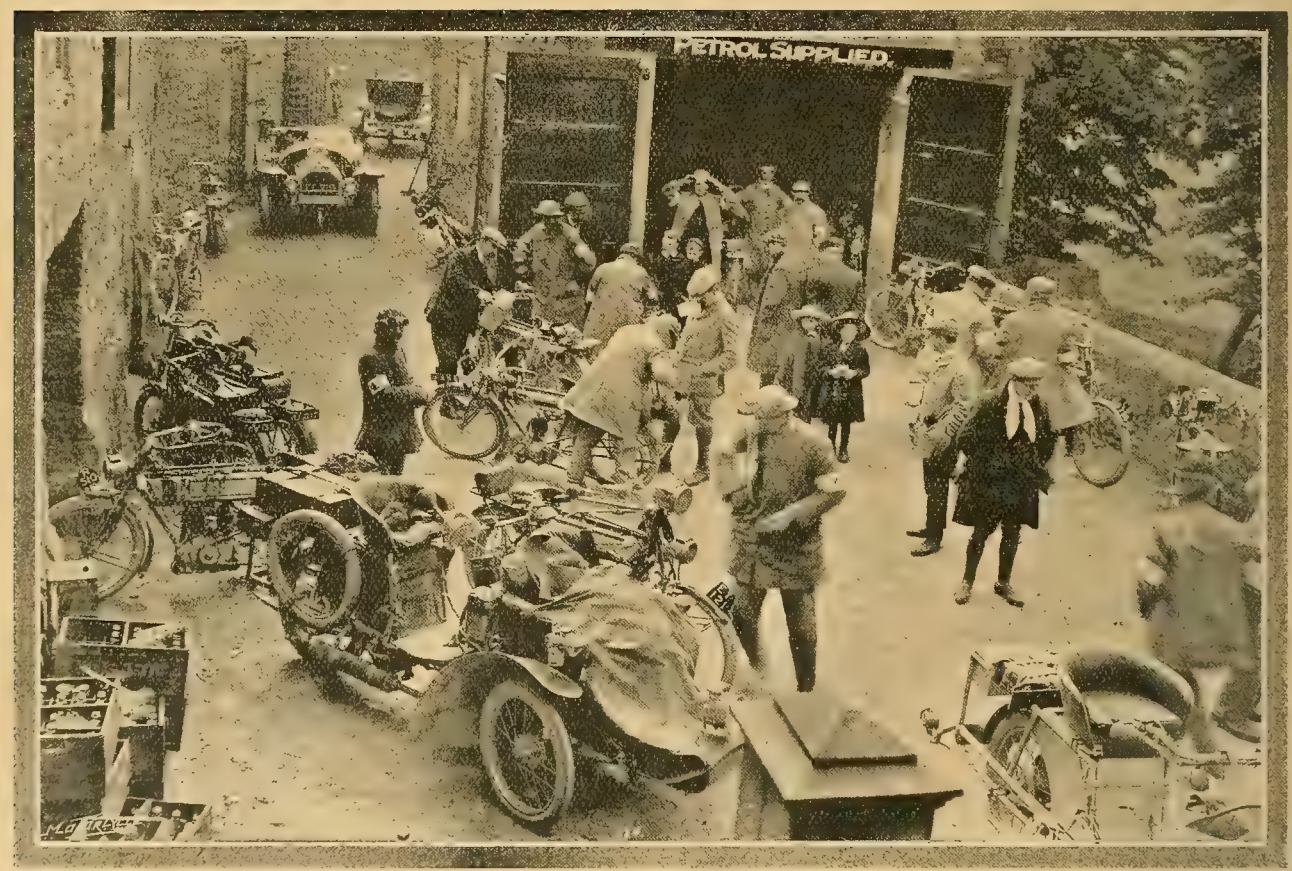
The M.C.C. London to Edinburgh Run.

IN the whole history of motor cycling there is nothing more remarkable than the ever-increasing popularity of this splendid competition, which year by year is better supported. Last week the number of motor cycle entries amounted to 106, of which ninety-nine were motor bicycles and seven passenger motor cycles, thus eclipsing all previous records. The fine open space in front of the Gatehouse Hotel, Highgate, presented the usual busy scene as the hands of the clock approached 10 p.m., and despite the large crowd of spectators and the numerous throng of competitors, the officials changed confusion into order with astonishing celerity. All the motor bicycles were placed on the right hand side of the road, and the passenger motor cycles and cars on the opposite, all the competing machines being arranged in their numerical order ready to fall into line as the starter, Mr. F. T. Bidlake, and the marshal required. A cool evening with the wind in the North-west, a bright crescent-shaped moon and a clear sky boded a fine passage for the riders, but near the time appointed for getting under way black clouds began to gather to windward, and the sky became gradually overcast. Leaving Highgate shortly before the first man was due to start we made our way to Biggleswade, which marks the completion of the first stage of the journey. Even at this epoch in the history of motoring the journey from London to Edinburgh is to be considered no light one. Four hundred miles separate the two capitals, and in twenty-four hours this space must be covered, man and machine must alike be fit to accomplish half of the greatest length of this island of ours in the time allotted for the purpose.

The first event of any importance was the meeting of a patch of unrolled metal, near Barnet, marked by an illuminated danger sign, and with the roller and its accessories hung with lamps. Here everyone had a fair warning of the approach of danger, but not so further on. Just outside the chief hotel in Hatfield lay a dangerous patch of unrolled stones, of which someone might have easily warned the riders. Near Baldock also as one approaches the town down a long descent another even worse patch was encountered, which caused the downfall of more than one rider. Shortly after leaving the town the night became very dark, and near Biggleswade spots of rain fell, and gradually developed into a downpour. On the route cards the following words come after the name Biggleswade "Check (no need to dismount)," which implies that a competitor may do so if he please, and who would not who has once sampled the excellent hot coffee and sandwiches made ready in the cheery Swan Hotel, where we found the first competitor who had passed us on the road.

Close on midnight came Sale, followed by others, and for the next hour men came in thick and fast, demanding petrol and sandwiches, coffee and carbide, water for their lamps, and lubricating oil all in the same breath. Imagine that quiet, orderly, and sober town, all ablaze with headlights of a crowd of fifty competitors at once—a scene which must be seen to be realised. For one solid hour continuous streams of riders poured in, all enthusiastic despite the rain now pouring down upon them, and relating to one another the terrors of that patch of stones at Baldock. Williamson, the present holder of the End-to-end record, was one of the victims, and R. C. Davies, who arrived very late, was another. Troubles at this early stage were, of course, few and far between, but one or two men had to struggle with their lamps, of whom one failed to get a light until he put the water he had forgotten into the generator.

The competing machines represented almost every known make of motor cycle. Several machines made their début in open competition on this occasion—the 4½ h.p. A.S.L., ridden by Mr. A. Sharp, fitted with a 4½ h.p. Jap engine, and possessing a distinctly novel feature for a motor bicycle,



In the hotel yard at Wetherby, preparing for the third stage of the run.

The M.C.C. London to Edinburgh Run.—

namely, a pressure fed Jap carburetter; the machine was also suspended fore and aft on Sharp's patent air springs. The other débutant was Mr. Chater Lea's carette.

Gunn, who has done the "hat trick" in this competition, made the journey this time on a new Lagonda car.

By 2.30 most of the men had gone by, and had started to cover the second stage of the journey to Grantham and breakfast. The rain still fell, and the night was cold, but the men bravely forged ahead in the teeth of the wind and driving rain to meet the fine weather that was shortly to come. Tempsford Bridge, set at right angles to the road, had to be negotiated, where men waving lamps indicated the danger. Eaton Socon, Buckden (where the road to Huntingdon is nearly always taken by mistake, despite adequate warning, even by men who have made the journey several times), and Alconbury (which boasts of the only hill between Biggleswade and Stilton) are then passed. Here daylight, cessation of the rain, and a cold, breezy morning, not quite neglected by sunshine, cheer on the men, who, as the light grows stronger, increase their pace and speed along the road, growing straighter and less thronged with villages, until Grantham is reached and the second stage is over.

Of the competitors, T. J. Weightman had sparking plug trouble, and was much delayed. S. T. A. Oldfield had to retire owing to a broken carbon brush in his magneto and a broken fork spring. Mundy, the last man to send in his entry, was reported to have suffered a puncture and a clogged up free-wheel. Rumours of other troubles were reported, and one man was said to have found himself in a ditch. Through Norman Cross a Motosacoche and Moto-Rêve were seen travelling in excellent style. Below we give the names of the riders and their machines who checked at Biggleswade:

MOTOR BICYCLES.

*S. G. Frost (4½ Minerva)
S. Webb (3½ Triumph)
C. G. Myer (9 Bat)
W. H. Wells (5 Vindec)
*J. S. Harwood (3½ Triumph)
W. H. Lane (3½ Triumph)
H. G. Cove (2 Moto-Rêve)
F. Mussell (3½ Quadrant)
*A. G. Reynolds (3½ Vindec)
W. A. Sale (5 Vindec)
G. E. Roberts (3½ Triumph)
A. M. Tatham (3½ Matchless)
*E. Gwynne (3½ Vindec)
A. de S. Hutton (6 Premo)
A. D. Draper (3½ Matchless)
V. Olsson (5 Vindec Special)
*L. A. Baddeley (3 Baddeley)
A. D. Nicholson (3½ Triumph)
G. W. Raper (6 N.S.U.)
J. S. Tweddle (3¾ N.S.U.)
*T. F. Cox (7-8 Minerva)
C. J. Seed (5 Vindec Special)
R. M. Brice (3½ Brown)
H. C. Horswill (3½ Brown)
*H. Williamson (3½ Rex)
S. Oldfield (3½ Quadrant)
H. Collins (3½ Norvic)
H. M. Bentley (3½ Triumph)
*C. H. Crole-Rees (6 Advance)
W. O. Bentley (3½ Bell)
J. T. Weightman (3½ N.S.U.)
P. H. Trotman (3½ Triumph)
*F. White (5 Rex)
H. G. Bell (3½ Triumph)
G. Brough (3½ Brough)
B. Cumberland (3½ Triumph)
*W. A. Jacobs (3½ Rex)
Miss Muriel Hind (5 Rex)
H. S. Myer (3½ Rex)
Capt. Sir R. K. Arbuthnot, Bart., R.N. (3½ Triumph)
*J. Le Grand (2½ Matchless)
J. L. Barratt (5-6 Peugeot)
D. S. Baddeley (5 Baddeley)
I. Hart-Davies (3½ Triumph)
*G. L. Fletcher (2 Moto-Rêve)
R. C. Davies (6 Griffon)
H. G. R. Slingo (5½-6 Griffon)
A. J. Sproston (5 Vindec)
*W. Pershke (4 Diamond)
J. Stuart-White (1¾ Motosacoche)
J. V. Robinson (1¾ Motosacoche)
*A. S. Phillips (5 Vindec)
E. Pond (5 Vindec Special)
G. Gibson (3½ Triumph)
A. H. Forbes (3½ Triumph)
*O. L. Summers (3½ Vindec)
C. C. Cook (3½ Triumph)
A. McDonald (3½ Triumph)
A. Peppercorn (2¾ Anglian)
*R. O. Clark (5 F.N.)
M. Campbell (5 Vindec)
Dr. Moss-Blundell (3½ Z.L.)
W. H. Bashall (3½ Triumph)
*H. P. Beasley (5 Rex)
H. C. Sayer (3½ Triumph)
J. Cooper (3½ Triumph)
A. Walton (5 Vindec Special)
*A. Sharp (4½ A.S.L.)
C. F. Lacey (3½ Fafnir)
A. T. Browett (3½ Triumph)
V. H. Deucher (5 Vindec)
*J. O. M. Dixon (3½ Vindec)
P. C. Campariole (3½ ——)
G. Rowden (3½ Bat)
W. H. Bishop (3½ Vindec)
*C. E. Woodger (5 Eland)
H. C. Haûriott (3½ Triumph)
H. Cowlin (3 Triumph)
A. Jelks (3 Chase)
*J. Winslow (5 Rex)
P. E. Quick (3½ Triumph)
S. H. Clay (4½ Minerva)
*O. C. Godfrey (5 Rex)
J. H. H. Robinson (6 N.S.U.)
H. Childe (3½ Triumph)
P. Janson (3½-4 Bat)
*A. M. Lomax (3½ Triumph)
F. G. Smith (3½ Triumph)
W. Adam (3½ Triumph)
A. O. Holmes (5 Crypto)
G. E. Purchase (3½ Triumph)
Dr. C. Gibbons (3½ Minerva)
A. G. Fenn (3¾ Rex)
W. Pratt (3½ P. and M.)
*R. G. Mundy (3½ Triumph)

TRICARS.

M. W. Randle (10 Lagonda)
F. Cozens (10 Lagonda)
H. S. Freeman (10 Lagonda)
F. A. Hardy (6 Panhard)
Dr. E. W. Brewerton (10 Lagonda)

*Signifies competitors for the Schulte Cup and special cup for motor bicyclists.

At Grantham, a number of Nottingham motor cyclists, including Mr. E. G. Young, were waiting to give the competitors a reception. Here some 400 eggs were disposed of by the competitors. Wells, Sale, and Sproston led the vanguard into Doncaster, where Mr. W. E. Corcutt noted the times of the competitors. At Wetherby, as usual, the second breakfast was waiting for the plucky riders, and a crowd of people welcomed them. The run is creating more interest every year. Hundreds of people lined the route through the towns and villages.

No fewer than seventy motor cyclists got through to Edinburgh, and will be eligible for gold medal awards. Then there were three tricars which covered the distance in safety, and twenty-three cars which completed the journey. Thus, of the 126 who left London, ninety-six arrived in Edinburgh. The run to many of the competitors was not of the most enjoyable nature, and for that the weather was largely to blame. There was a drizzling rain for an hour or two during Friday night, and the trouble on Saturday was

Miss M. Hind (5 h.p. Rex) leaving the Newcastle control. She had quite an enthusiastic reception at Newcastle.

caused by wind and dust. It was a bitterly cold "nor-easter" that was blowing practically all the way, and it drove clouds of dust straight into the faces of the competitors, who were thereby seriously inconvenienced. Eye trouble was a common complaint, and one of the earliest arrivals said it was no unusual thing to get into such a dense cloud that he could not see twelve yards in front of him. A further complaint was that in more than one part of the journey there were very rough stones on the road, and R. C. Davies came to grief about forty miles out from London over a heap of unlit stones. Notwithstanding a spill, he persevered on to Doncaster, but his magneto was so damaged by the shock that he decided to give up the attempt to ride to Edinburgh, left his machine at Doncaster, and took train to Edinburgh.

There were, unfortunately, two more accidents, which threw R. M. Brice and E. Pond out of the run. Brice, one

The M.C.C. London to Edinburgh Run.—

of the most experienced and steadiest of riders, and who has taken part in this run on several previous occasions, collided with a boy of fourteen or so, who was on a push-bicycle, at a crossway near Wetherby, and both were reported to be badly hurt, particularly the boy. Everyone regretted that such a thing had happened, and it may be stated that this is the first thing of the sort that has happened since this run was instituted. Pond, it seems, had fallen foul of a ditch or a bridge somewhere about Grantham, and had been taken to hospital in an unconscious condition.

Miss M. Hind was the only lady motor cyclist, and she was well within time when she reached Edinburgh. This is the first time a lady on a motor bicycle has done the journey in connection with the competition. Twice before, however, Miss Hind has taken part in the run—first on a 9 h.p. Singer tricar, with a lady passenger, and last year on a car. Miss Hind had quite a pleasant journey, despite the strong head wind, and to look at her one would have thought she had come no further than Levenhall instead of all the way from London town. Except for a tyre puncture during Friday night, Miss Hind had no trouble of any sort.

The competitors were preceded by two official cars—one lent by the president of the club, Mr. Charles Jarrott, and the other by Mr. F. J. Jenkins, one of the committee. The travelling marshals in these cars were Mr. Jenkins, Mr. R. H. Head, and Mr. Arthur Candler, and their duty was to organise the run all the way down and to see that the competitors conformed to the requirements. The marshals came on half an hour in advance of the competitors, and set the watches *en route* by that of the timekeeper.

There were two cups competed for on the double journey—one the Schulte Cup, for all classes of motor vehicles costing not more than £250, and the other the Motor Cycling Club Cup, for motor bicycles only.

The arrival of the competitors at the Royal Hotel, Prince's Street, attracted a great deal of attention, and so big was the crowd gathered round the door, that the police, including a mounted man, had to control the traffic. The first arrival, W. H. Wells, came in shortly before seven o'clock, and the others came in at intervals more or less long.

Appended is a list of the survivors who reached Edinburgh:

MOTOR BICYCLES.—S. G. Frost, S. Webb, C. G. Myer, W. H. Wells, J. S. Harwood, W. H. Lane, H. G. Cove, A. G. Reynolds, W. A. Sale, G. E. Roberts, A. M. Tatham, E. Gwynne, A. de S. Hutton, A. D. Draper, V. Olsson, L. A. Baddeley, A. D. Nicholson, G. W. Raper, T. F. Cox, C. J. Seed, H. Collins, H. M. Bentley, C. H. Crole-Rees, P. H. Trotman, F. White, H. G. Bell, B. Cumberland, W. A. Jacobs, Miss Muriel Hind, H. S. Myer, Capt. Sir R. K. Arbuthnot, Bart., R.N., J. P. Le Grand, J. L. Barratt, D. S. Baddeley, I. B. Hart-Davies, G. L. Fletcher, A. J. Sproston, J. V. Robinson, A. S. Phillips, G. Gibson, A. H. Forbes, O. L. Summers, C. C. Cook, A. B. McDonald, R. O. Clark, M. Campbell, Dr. C. B. Moss-Blundell, H. P. Beasley, H. C. Sayer, A. Walton, C. F. Lacey, A. T. Browett, J. O. M. Dixon, P. C. Campariole, G. Rowden, W. H. Bishop, H. C. Haûrott, H. Cowlin, J. Winslow, P. E. Quick, S. H. Clay, O. C. Godfrey, J. H. H. Robinson, H. Childe, P. Janson, F. G. Smith, W. Adam, A. G. Fenn, William Pratt, and R. G. Mundy.

TRICARS.—F. Cozens, H. S. Freeman, and Dr. E. W. Brewerton.

THE RETURN JOURNEY.

Those who elected to go the return journey had a quiet send-off when they set out at half-past twelve on Monday morning, and Mr. Bidlake superintended their departure. Several of those who got through to Edinburgh had intended to make the double journey, but did not do so for one reason or another, and those who started for London in competition for the Schulte and the M.C.C. Cups were: S. G. Frost, A. G. Reynolds, E. Gwynne, C. H. Crole-Rees, G. L. Fletcher, A. S. Phillips, O. L. Summers, R. O. Clark, H. P. Beasley, J. O. M. Dixon, J. Winslow, and O. C. Godfrey.

The Schulte Cup and M.C.C. Special Cup. Arrival at Barnet.

Almost with the punctuality of an express train, those competing for the Schulte and Motor Cycling Club trophies arrived at Barnet on Monday night. Tired and dust-begrimed they were, but cheerful and delighted at having accomplished successfully the double journey of nearly 800 miles. Twelve motor cyclists were despatched from Edinburgh, and only two failed to reach Barnet; or in other words, eighty per cent. of the starters finished the journey. The first man to arrive was R. O. Clark (four-cylinder F.N.), who started late and arrived a trifle early. Next came S. G. Frost (4½ h.p. Minerva), A. G. Reynolds (3½ h.p. Vindec), and O. C. Godfrey (5 h.p. Rex); all three reported having made an excellent journey. The roads and weather were all that could be desired, and the wind in the favour of the competitors. The other arrivals were: J. Winslow (5 h.p. Rex), who had had tyre trouble; C. H. Crole-Rees (6 h.p. Advance), who had had trouble with his front forks; A. S. Phillips (5 h.p. Vindec); L. Gwynne (3½ h.p. Vindec); H. P. Beasley (5 h.p. Rex), tyre and belt troubles; and O. L. Summers (3½ h.p. Vindec). Gwynne, Phillips, and Summers suffered no trouble whatsoever, and expressed themselves delighted with the journey. Some of the men had most elaborate route cards carried in frames or glass-fronted boxes, which were illuminated by electric light. All the competitors agreed that, though they had a very hard ride on the outward trip, the return portion of the competition was delightful. Reynolds appears to have kept very closely to schedule time all through, but stated that to do so was a tremendous strain. At Cockburnspath he fell, fortunately without damaging his machine.

CLUB NEWS.

Nottingham and District M.C.C.

The first meet is to be held on Saturday next, the 13th inst., and the destination Newark.

Cheltenham and District M.C.C.

This club held a speed-judging competition on June 3rd. Result: 1, W. B. Gibb (1¼ h.p. Motosacoche), 2s. too fast; 2, F. W. Corbett (2½ h.p. Lamberjack), 5⅘s. too slow; 3, H. A. Cooke (5 h.p. Dreadnought), 21s. too slow.

Swindon M.C.

A speed-judging competition was held on May 16th, between Swindon and Castle Coombe; distance, twenty-six miles; time allowed, without voluntary stops, 82m. 6s. Results: W. Jackson (5 h.p. Twin Rex), 83m.; R. G. Hannington (3½ h.p. Triumph), 77½m.; H. Rayor (5 h.p. Twin Rex), 93m.; C. S. Wilson (3½ h.p. Triumph), 71¼m.; C. Webb (5 h.p. Rex de Luxe), 103m.

Birmingham M.C.C.

The result of the above club's annual reliability trial, held on Whit-Monday, was as follows: F. G. Sandison (3½ h.p. Triumph), 1st; F. H. Southam (5 h.p. Vindec), 2nd; R. W. Duke (3½ h.p. Triumph), 3rd; F. W. Aston (3 h.p. Triumph), A. H. Haden (3½ h.p. New Comet), S. C. Perryman (5 h.p. Norton), A. Shrieves (5 h.p. Rex), and E. W. Winckle (2 h.p. Clément-Garrard) also completed the course.

Welsh A.C.

The hill-climbing contest on Philadelphia Hill, Carmarthen, on the 5th inst., before a large crowd, resulted on formula as follows:

E. T. Strick (Clément-Garrard)	.76
Donald Burnie (3½ h.p. Triumph)	.67
J. Shimell Andrew (3½ h.p. Triumph)	.67
G. P. Gold (3½ h.p. Triumph)	.654
W. G. Mason (3½ h.p. Triumph)	.652
B. T. Davies (3½ h.p. Brown)	.63

Competitors were allowed three ascents of the hill, the best time to count. The fastest ascent was made by B. T. Davies in 1m. 41⅖s. The winner now holds the Cory-Yeo Cup.

M.C.U.I. (Dublin Centre.)

The first speed trials of this season were held on Portmarnock Sands on Saturday, May 30th. Results:

Two Miles Members' Handicap.—S. Findlater (J.A.P., 85 by 76), 30s., 1st; P. Hurse (Peugeot, 75 by 75), 60s., 2nd.

Twenty Miles Open Handicap.—S. Findlater (J.A.P., 85 by 76), 5½m., 1st; B. Dumphy (J.A.P.-Matchless, 85 by 76), 4½m., 2nd; C. B. Franklin (J.A.P., 85 by 85), 3½m., 3rd.

C. E. Murphy (Triumph, 84 by 86) was disqualified in both events for not riding a properly-equipped machine. S. Findlater and H. Quinn were cautioned for not keeping to the correct course.

Club News—

Cambridgeshire M.C.C.

The run on the 14th inst. is to Bedford, meeting at the Westminster College at 9.30.

On the 18th inst. meet at headquarters at 2.45 for Huntingdon *viâ* Caxton Gibbet, Papworth, and Fenstanton. Members are requested to make a special effort to attend this run so as to become acquainted with the course for the reliability trial on the 25th inst.

A Leeds M.C.C. trophy. The Kelly Cup, won by F. W. Greenwood on a 3½ h.p. Rex. Thirteen competitors out of seventeen made absolutely non-stop runs.

Perth and District M.C.C.

A reliability trial was held on the 30th ult., starting from Strathord Bridge. The route was by Stanley, Caputh Bridge, Dunkeld, and New Inn to the starting point, continuing by Perth, Almondbank, Pitcairngreen, Moneydie, New Inn, and back to Strathord. The first few in order of merit, irrespective of speed, were as under: J. Adamson, D. Y. Sommerville, J. Livingstone, C. W. Livingstone (tied), B. Syme, J. P. Crichton, E. A. Gorrie, and D. Robertson. The first prize under club rules goes to Mr. J. P. Crichton.

Bolton and District M.C.C.

A reliability run was held on the 30th ult., the course being from Bolton to Gisburn—a distance of ninety miles. The winner proved to be the secretary of the club, who rode a 2¾ h.p. Minerva. Result: 1, A. Richards (2¾ h.p. Minerva), gold medal; 2, A. R. Batten (3 h.p. Headward); 3, J. Fishwick (6 h.p. N.S.U.), consolation prize; and 4, H. Davies (3½ h.p. N.S.U.), consolation prize. There were fifteen entrants and twelve starters. A speed judgment trial has been fixed for July 18th.

Bocardo M.C.C. (Oxford).

A hill-climb (handicap) and speed-judging contest held on the 28th ult. resulted as follows: Result of hill-climb (Prof. Callendar's formula).—1, H. J. Hill (5 h.p. Vindec Special), time 34⅘s., figure of merit 58.8; 2, H. Braithwaite (2¾ h.p. De Dion), time 64s., figure of merit 65. Result of speed judging, the object being to ride machine over a measured quarter of a mile at an average rate of 15 m.p.h.—1, H. J. Hill (5 h.p. Vindec Special), time 56s.; 2, G. Arnett (2¾ h.p. Phœnix), time 55⅘s.

Motor Cycle Union of Ireland (Ulster Centre).

On Saturday, the 13th inst., at four o'clock, a hill-climb will be held at Sugar Loaf Mountain. Two classes are included. Entries close Thursday, the 11th inst.

The inter-centre competition for the Triumph Cup takes place on Saturday, June 27th, at 2.30 p.m., starting from Tolka Bridge, Drumcondra, finish at Balmoral, outside Belfast.

Competitors in the hill-climbing competition of the Bocardo M.C.C. (Oxford).

Liverpool M.C.

On Saturday next a reliability trial to Newport (Salop) and return has been arranged. The start is from Pepper's, Claremont House, near Queen's Ferry Cross Road, at 2 p.m. Entry fee (2s. 6d.) must be in the hon. secretary's hands to-morrow (Thursday). On the following day the run is to Hale; 20th, Winwick; 21st, Rufford.

North-west London M.C.C.

The committee, having received the judges' and checkers' reports, are now in a position to announce the final results of the club twelve hours' reliability trial from London to Coventry and back on May 23rd. The following have been awarded a silver cup, which will be presented at the annual dinner and prize-giving: A. S. Phillips (5 h.p. Vindec), G. Rowden (3½ h.p. Bat), E. Gwynne (3½ h.p. Vindec), Miss M. Hind (5 h.p. Rex), W. H. Pidgeon (3 h.p. Rex-Goldhurst), C. H. Burton (3½ h.p. Vindec and sidecar), S. A. Knaggs (2½ h.p. Ariel), G. H. Hollis (3½ h.p. Triumph), H. G. Cove (3½ h.p. H.G.C.), G. Bennett (3 h.p. Marlborough), M. Tuchmann (3½ h.p. Triumph), C. H. Crole-Rees (6 h.p. Advance), M. Campbell (5 h.p. Vindec), W. G. Barton (3 h.p. Triumph), T. G. Blundell (3½ h.p. Triumph), D. K. Edwards (2¾ h.p. M.M.C.), and E. W. Ashworth (7 h.p. Minerva).

In addition to competitions already announced, it has been decided to hold a flexible hill-climb on October 10th. Mr. C. G. Myers has kindly offered a cup for competition at this event. The committee have accepted the offer, and passed a vote of thanks to the donor.

Members are reminded of the speed-judging competition, which takes place on Saturday, June 13th, the entrance fee for which is 2s. 6d. Any member who has not yet received entry forms and full particulars should communicate immediately with Mr. T. G. Blundell, jun., 30, Ferncroft Avenue, Hampstead, N.W.

Cambridge University M.C.C.

Results of competition for Rolls cup. A hill-climb was held at Sharpenhoe on May 16th, and the reliability and petrol consumption test was held on May 23rd, the route being: From Cambridge to cross roads two miles from Newmarket, and thence back to Cambridge by Six Mile Bottom and Gog and Magog Hills. This circuit was traversed three times, being a total of eighty miles.

Name and machine.	Hill-climb.	Petrol consumption.	Reliability.	Total.
E. D. Dickson (5 h.p. Vindec)	260.9	57.28	300	618.18
N. W. Hutchinson (3½ h.p. Triumph)	270.7	43.07	300	613.77
J. M. Oakey (5 h.p. Vindec)	253.6	27.05	297½	578.15
C. L. Mere (3½ h.p. Triumph)	235.1	28.4	292½	556
A. R. Murray (3½ h.p. Triumph)	217.3	16.24	275½	509.04
C. H. Stephenson (6-7 h.p. Bat)	152.6	33.8	300	486.4
R. G. Heyn (5½ h.p. Rex)	130.4	38.4	300	468

The figure of merit at Sharpenhoe was multiplied by ten and subtracted from 500; 300 was the maximum of marks allowed for reliability. One mark was given for every mile per gallon better than eighty miles for single-cylinders and fifty-five miles for twin-cylinders.

S.E. Auto Cycle Association.

At the last committee meeting fifteen new members were elected, and the honorary secretary reported that applications for membership forms under the 5s. associate scheme have been so numerous that he found himself quite unprepared for the rush, and had been obliged to wait for the five hundred forms now on order from the printers.

The legal department is now under the control of Mr. J. A. T. Good, the club solicitor, who has defended successfully so many motor cases, and is an enthusiastic motor cyclist himself. Prospective members should apply to H. B. Renner, 31, Kidbrook Park Road, Blackheath, S.E.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Pedals in the T.T. Race.

[3355.]—I am pleased to notice that pedals are barred in the Tourist Trophy Race. It should be a great inducement to the private rider to compete. I look forward to the time when they will be barred in all other competitions.

E. VARNEY.

Day of the Quarterly Trials.

[3356.]—In reply to Mr. Edgar W. Brighten's grumble, I wish to say I am an average amateur with a business to attend to; consequently I am unable to leave my business on a Saturday. The last Quarterly Trial, which was altered from a Saturday to a Wednesday, is the only one I have ever attended, although I have been a motor cyclist four and a half years. Were the trials always held on any day but Saturday, I with several others would immediately join the A.C.U. and enter. Surely if Mr. Brighten gets three out of four fixed for a Saturday he ought not to grumble. I should like to see a club started for trials, hill-climbs, etc., to take place on, say, Wednesday or Thursday, or any day but Saturday.

EARLY CLOSING THURSDAY.

Behaviour of Rubber Belts in Wet Weather.

[3357.]—In a recent issue of *The Motor Cycle* "Ixion" writes about rubber belts slipping in the wet, and I write this merely to state that I think all rubber belts slip if the rubber gets at all wet. I have had two, and both were alike, so long as the rubber was on the gripping sides, and I got slip before I had ridden a quarter of a mile in anything over dampness caused by fog. When the rubber got worn off the sides they gripped all right, but slipped a lot on dry dusty roads; in fact, I found the canvas held the grit and caused a lot of wear on the pulley. I now use only a leather belt and find it wears the best. My pulley is cut to correct angle, and the belt rim is a James.

J. HAYTON.

A Suggested Formula.

[3358.]—I always read with great interest the various problems which appear in the "Questions and Replies" of *The Motor Cycle* every week, and hope the following may be of interest to some of your readers:

If M be the driver of a motor cycle, working with velocity V; if a sufficiently high value be given to V it will ultimately reach PC. In most cases V will then = O. For low values of V, PC may be neglected; but if V be large it will generally be necessary to square PC, after which it will again assume a positive value. By a well-known elementary theorem—

$$PC + LSD = (PC)^2$$

but the quadrature may be sometimes effected by substituting X^3 (= XXX) for LSD. This is preferable if LSD is small with regard to M. If LSD be made sufficiently large PC will vanish.

Now, if JP be substituted for PC (which may happen if the difference between M and PC be large) the solution of the problem is made more difficult because no value of LSD can be found to effect the quadrature of JP, for, as is well known, $(JP)^2$ is an impossible quantity. Note.—The value of V need not suffer diminution if a circle be described about PC, then the method of least squares should be used, especially when LSD is a rapidly vanishing quantity.

OLD JOE.

Gudgeon Pin End Brasses.

[3359.]—Regarding letter No. 3319, I fitted the same idea to a home-made engine as far back as 1904, only improved by fitting a small pin to project from side of gudgeon pin into a recess in piston, to arrest any possibility of gudgeon pin turning round. If "Ilfordian" cut ½in. off each end of a gudgeon pin like mine, it would barely stop in the piston. If properly fitted, $\frac{3}{16}$in. is ample, as brasses do not wear. I have found it a success on two engines of mine and also a friend's. I have never had a set-screw fall out; I did not give such an unmechanical idea the chance.

Common stationary gas-engine practice is not always good for a motor cycle engine, as a set-screw has very little chance of proper exit from the latter. Some makers are dull. I never saw the brasses idea before I fitted it, and am surprised more makers do not use it.

FRANK CHAMBERLAIN.

Soldering Petrol Tanks.

[3360.]—Referring to letter No. 3334 *re* soldering of petrol tanks, I may inform "Llewen Side" that, having had a few years' experience in the use of petrol for various purposes, I am not so much in ignorance of its nature as to solder with the filler cap on. Both the cap and the petrol tap holes were open. Also the tank was washed out about three times, and then it was left overnight before soldering. I must confess that I am yet puzzled as to how the explosion was caused. If there was any gas present, it must have been in a very small quantity, and, of course, the pressure must have been nearly nil. Anyway, the force of the explosion was sufficient to blow the sides and top of a tinned steel tank open. The result, after being extremely careful, convinced me that others less careful and experienced may easily make a very disastrous mistake. Hence my warning.

FRED WHITTAKER.

Sidecars, Belts, and other Interesting Items.

[3361.]—The issue of May 20th of your excellent journal is one of the most entertaining I have read for some time, as it discusses many interesting points, on most of which all motor cyclists have an opinion of some sort.

For instance, "Road Rider's" remarks *re* sidecars will be chosen as a text for innumerable letters from various sources—chiefly as a disguised and free advertisement from those monetarily interested. The chief disadvantages mentioned in the paragraph against the rigid sidecar can easily be removed. The sidecar I had built to my specification shows none of them, hence it can be done.

While on the subject of sidecars I may revert to Mr. Pooley's letter *re* tyres. The rigid sidecar is not hard on tyres. I must modify this statement by saying it depends firstly on what you call a tyre, secondly on the wheels being vertical, and in alignment.

When I was having my machine built over fifteen months ago I wrote to Messrs. W. and A. Bates, of Leicester, for their advice as to tyres for my particular requirements. I stated horse-power, weight, mentioned style of sidecar, etc., and I followed their advice, with the result that since fitting I have not had my covers off the rims once. It is a tip motor cyclists should all adopt. Get your pet tyre makers to state in black and white what they recommend, adopt it, and make them stick to what they said should you ever meet trouble. But you won't provided your tyres are what

they should be. If I could make the rest of my machine as reliable as my tyres I should have a no-worry combination indeed.

Referring to "Ixion's" unique rubber belt experience, I can only say that during the four years I have used Dermatine belts I have had nothing like that happen. In fact, I think the belts grip better when wet, especially if they are slightly worn, and of correct tension.

Re the belt fasteners. I had a great worry from these, because they had to stand the racket of my Osborne four-speed and jockey pulley. I overcame the difficulty by using a countersunk screw, with a nut underneath the belt. Any good hook fastener of the Celerio variety can be thus adapted. The shortening is not messy at all, and here, again, I have my own method.

Perhaps I was a bit too soon in writing my letter No. 3325. Since then I wrote to the makers stating I found no improvement in the running of my motor, but thanking them all the same for the trouble they had put themselves to. I expected that would conclude the whole matter.

Imagine my surprise when I received a few days after a letter from them informing me of despatch of a new and tested motor, which they begged me to compare with my old one, I eventually to return the one I did not choose.

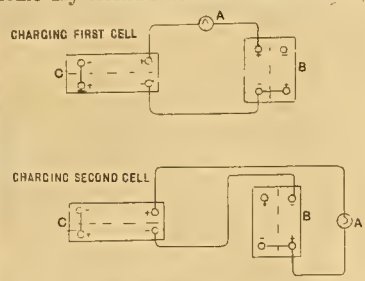
I do not think you could better this for fair treatment and an earnest desire to satisfy, and for that reason, and after what I have written, it deserves the greatest publicity.

As I have previously stated, I am in no way connected with any of the articles mentioned

B. RICHARDSON BILLINGS, M.R.C.S., L.R.C.P.

New Use for an Electric Headlight.

[3362.]—If not already known, I think the following may be of some use to those of your readers who motor cycle in pairs. Ten miles from home my friend's accumulator ran out, showing only 3.25 volts on voltmeter. My own accumulator being well up, and of 20 ampere-hour capacity, we took both accumulators from machines, and charged his from mine, one cell at a time, for half an hour each cell.



A. Electric headlight.
B. Accumulator to be charged.
C. Charging accumulator.

The connections were as shown in the sketch herewith.

This carried us home all right without a misfire.

HAROLD J. COX.

P.S.—An ordinary pocket test lamp would, of course, have served just as well as the headlight, though it would probably have necessitated longer charging, owing to its not taking so much current.

Petrol in Small Tins.

[3363.]—Perhaps an experience of mine the other day may be of interest to your readers, and cause them to be exceedingly careful (as I shall be in future) when having their tanks replenished to see they get the proper article. I had my petrol tank filled up at a small garage from a Shell can (not sealed), and had gone a few miles when my supply pipe broke. After a short stop to repair it I was unable to restart the machine, and after spending about one and a half hours, testing everything, I discovered I had been served with paraffin. A car driver very kindly stopped and gave me some "genuine Pratt's," which enabled me to ride to the next town. For the convenience of motor cyclists, why cannot manufacturers send out petrol in sealed gallon cans as well as the two gallon size? Only the same day I should have got in a supply at another place just before reaching the "paraffin garage," but they would not serve less than two gallons.

On the above run I broke my front cylinder exhaust valve (my first), but after a five minutes' stop to take out the broken valve head, I rode the remaining sixty miles home on one cylinder at a good twenty miles an hour—one point in favour of the twin!

F. H. M.

Silence.

[3364.]—In your issue of May 20th "Road Rider" advises riders not to use too good a silencer. I think this is rather bad advice, as there is no doubt that motor cycles are disliked by non-riders, chiefly on account of their noise, which, in a good many cases, is very far from silent.

In support of my opinion that you cannot have too good a silencer I may mention that on the 19th ult. I was fined at Bow Street for passing a cab shelter on the wrong side, and one of the points upon which the magistrate laid great stress was whether the machine was noisy or not. Fortunately for me I use one of Sharpe's silencers, and the exhaust is practically inaudible. Had it been otherwise there is no doubt my fine would have been considerably higher.

Some riders, of course, dispense with silencers altogether. I met five such in Piccadilly a few days ago, and I can assure you they were not creating a very favourable impression.

LC 2312.

Police Methods.

[3365.]—The letter appearing in your issue for May 27th under the heading "Police Methods," and signed "White Coat," to my mind, raises one or two important questions.

Firstly, what right have the police to demand the inspection of a license when the owner is on private property, *i.e.*, in this case, the hotel yard? Secondly, assuming the police have a right, when and where is one free from such annoyance after having garaged one's motor?

It appears to me that the necessity to comply with a demand to have one's license examined only holds good when in charge of a motor on a public highway, and that under conditions as experienced by "White Coat" should be resisted on principle.

S. G. L.

[The Act says: A licensee must at any time *whilst driving a motor car* (a motor cycle is a motor car within the meaning of the Act) produce his license to a police constable on demand.—ED.]

Unattached Riders.

[3366.]—In reply to Mr. H. G. Cove's letter *re* unattached riders in your last issue, I think every motor cyclist is agreed that the C.T.C. cannot possibly offer anything like the advantages offered by the A.C.U.

But Mr. Cove misses the vital point. What unattached riders want are the advantages he enumerates at a 5s. subscription, and not 10s. 6d. with an entrance fee of 5s. in addition, as this would make his outlay 15s. 6d. in all, which is more, I think, than the advantages are worth to him (as an unattached rider).

I am glad to see that the S.E. Auto Cycle Association is alive to this want, for according to its scheme all unattached riders from any part of the United Kingdom may become associate members for a subscription of 5s., and be thus affiliated to the A.C.U. and R.A.C. In other words, they will get all the advantages offered by the A.C.U. at 10s. 6d. for 5s. (and a few others as well). I, for one, am joining the S.E. Auto Association, and am sure that many thousands will do the same.

H. A. COOPER.

An Opinion from Japan.

[3367.]—"Does an air-cooled engine overheat?" During a recent trial in India I ran from Thana to some distance up the Bhor Ghat at full speed the whole way—about fifty-eight miles. (No speed limit in India, except in towns and villages.) I did not stop at the foot of the hill (rise of about 2,000ft. in four miles, with numerous hairpin corners) to cool, and the machine took the hill all right. I was pulled up by not being able to get round a bad corner. I lubricated very freely the whole way, but never had the exhaust smoky. The engine did not "smell" hot, and I am not a crack rider by any means. My Norton is the first motor cycle I have owned. I had a tricar previous to that, about which the less said the better. Some years ago my brother had a motor cycle (Buchet engine) which used to get red hot, but it did not seem to affect its running at all.

With regard to using a cut-out, it is not motor cyclists only who are the culprits. Two of the cars in the New York-Paris Race passed through here (Tokio) recently. One was running with an open exhaust. I should not think that it is good for the motor movement in a country where motors are a novelty.

TOKIO.

The Carnmoney Hill-climb.

[3368.]—Reading the reports and makers' glowing advertisements of the above event would give the stranger an impression that there was a hill to climb. The so-called hill is merely a bump on a side-road, the velocity of the machine down one side at the start carrying the machine up the other, with very little exertion on the part of the engine.

Surely the M.C.U.I. does not get up the sport for youngsters or novices only, together with the featherweight riders, with caps, neckties, exhaust pipes, etc., removed.

The winning machine in one event simply flew up the hillock, with the engine misfiring half the time. This machine was a home-made affair, and not to be compared with the magnificent ones present. If it had been firing properly no time could have been taken, as it would have climbed the hillock almost instantaneously. The other event was won on a machine of ancient construction, long since discarded by the makers. Surely the M.C.U.I. could try a slight incline such as the "Horseshoe," which is a regular road, and see how pumping of carburetters, elastic bands over float rods, dwarf engine pulleys, variable gears, etc., would do in an ordinary tourist run.

The cars would have been much better to have stayed at home, as they simply affronted themselves, with the exception of the winning one with the special gear box, which acquitted itself admirably.

I trust the M.C.U.I. will consider the Horseshoe, and give us an exhibition worthy of the name. WELLWISHER.

An Interesting Letter from Newfoundland.

[3369.]—I notice that there has been considerable discussion recently in your interesting journal *re* light and heavyweight machines, also belt and chain drive, and as most of your correspondents appear to be in favour of belt drive, I am moved to give my experience with chain drive, which I have been using for the past three years in conjunction with a 1¾ h.p. machine, weighing under 100 lbs. First and foremost, this is a very hilly country, and I know positively that I could not ride up half the hills to be met with on our main roads, if I were using a belt. I come to this conclusion by noting the experiences of a motor cyclist here who uses a machine of same h.p., but with belt drive.

While touring during last summer, I succeeded, strange to say, in negotiating a hill at first attempt on which three standard touring machines (3½ h.p.) of best English manufacture failed to get up. The hill in question has a hairpin turning half-way up, and a grade of about one in four on the turn and for a short distance beyond. The heavy machines could not be driven around the sharp turn at sufficient speed to keep going on the rest of the hill. In my case with a light machine I slowed down somewhat when taking the turn, and then pedalled a few revolutions, after which the machine picked up, and finished the climb in a satisfactory manner. The machine in question is geared 6 to 1.

The harsh drive which some people seem to fear is completely overcome by a patent compensating sprocket on the counter-shaft, which makes the drive as easy as with a belt. One set of chains lasted two seasons, when they became stretched, and I thought it best to discard them. The chain connecting pedals with rear wheel (for starting the machine) is of the same pitch and dimensions as the driving engine chain, and can be interchanged if necessary. The counter-shaft is on an eccentric, so that slack can be taken up.

I understand that this year's model has this improvement. The machine I have at present has been in use three seasons, and the only repair to the engine has been a new exhaust valve. The original valve pitted somewhat after being in for two years without being removed. The original sparking plug is still in service, although I carry spares in case of necessity. I am a firm believer in leaving an engine severely alone, until absolutely necessary. I can travel at the rate of thirty-five miles per hour, but the roads here will not really allow more than twenty-five miles per hour, and only for very limited stretches at that.

The heavy machine would, of course, be more suitable for a Goliath or a speed merchant, or in connection with passenger work. Strange to say, the makers of my machine list a side-car to go with the 1¾ h.p. machine, which I have no doubt would prove suitable on level roads, such as we, unfortunately, do not experience in Ye Ancient Colony.

G. H. M. B.

Belt v. Chain and Two-speed Gears.

[3370.]—Allow me to heartily endorse Dr. Patterson's letter. I am an engineer, and a user, not a builder, of motors. I, personally, refuse to ride with a single gear, say, from Manchester to London, meeting steep hills, greasy setts, tramlines, and thick traffic. Once I am hemmed in with traffic and stopped I am not prepared in the grease and traffic to go through the starting. I do not know where to get a good variable gear. I say "variable," because a three-speed gear is many times superior to a two-speed, and it will come in time. My choice at present is the belt. The chain will be infinitely superior when it has an elastic drive (not a slipping drive) and an oil bath gear case.

Last October I tried to get one of the "motor engineers of England" to build me a nice machine. I do not think it is a freak. It has a standard frame, standard 3½ h.p. twin engine and a two-speed geared back hub. It is a failure for these three reasons: (1) The handle starting will not cause the engine to start with a magneto; (2), the hub has been twice to its makers before doing 200 miles and not at their expense either; and (3) the "motor engineer," etc., made a small mistake in the weight of the machine, which is 60 lbs. heavier than he said. Of this class are too many of the motor engineers of England. They fit variable gears on the engine-shaft, reducing the speed of the unfortunate belt. They fit variable pulleys which give the smallest engine pulley when the strain on the belt is greatest. They make back hub gears of horrible weight that do not hold oil, and that have large diameter ball races. Often they are not educated as engineers. They are often not even educated men at all, and their reasoning faculties, which will bring a doctor or a lawyer to the solution of a simple problem, are not developed.

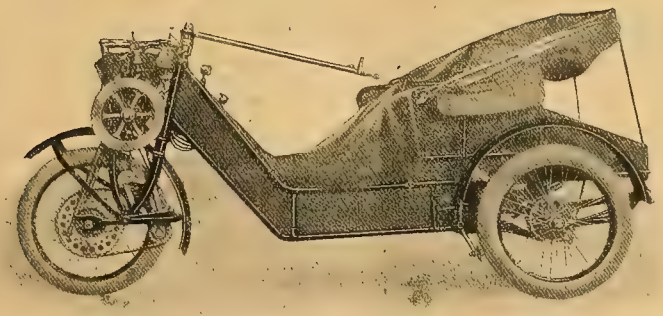
Arthur M. Startin (5 h.p. Riley tricar) in the Coventry M.C. run to Holyhead on May 30th. Leaving Menai.

For my part, I should like pedals for starting purposes; this is much less trouble than any other way, but one wants footrests also. I think the Phelon and Moore gear would be nice if it had an elastic drive and oiltight gear case, but with chains——. No; give me a belt. A chain is a nasty dirty thing to have anything to do with. You do not want even to see it, let alone have it break. Make it amply strong, and give it an elastic drive, swill it in oil, cover it up, and let it do its dirty, useful work out of sight and hearing. Then it will not trouble you with wearing or breaking. But it should be remembered that finer workmanship and material are required throughout in a motor bicycle than in almost any other piece of machinery owing to the necessity for reasonable lightness, the vibration, and the dust and mud.

A.M.I.M.E., A.M.I.C.E.

(Several letters are unavoidably held over.)

The Phenomobile



solves the problem of the Sociable Tricar.

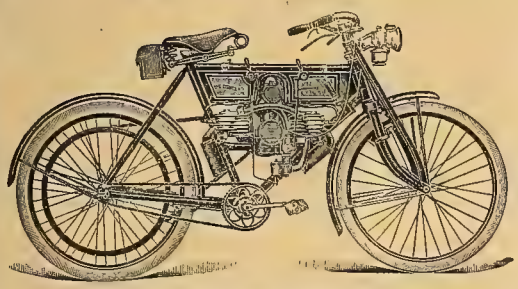
The Phenomobile combines the simplicity and low cost of upkeep of a Motor Cycle with the comfort and efficiency of a Car. In one vital point it even excels any motor-propelled vehicle: It is **entirely free from sideslip.** There are many other advantages which the Phenomobile possesses over the ordinary type of Tricar, and we shall be pleased to furnish you with full particulars on receipt of a postcard. Prices from **105 guineas.**

Sole Concessionnaires:

THE NEW ERA MOTOR CO., 6, Lonsdale Road, West Kilburn, LONDON, N.W.

Telephone: 3019 P. Hampstead.

30 Guineas.



2¼ h.p. twin-cylinder.
Bosch H.T. Magneto.

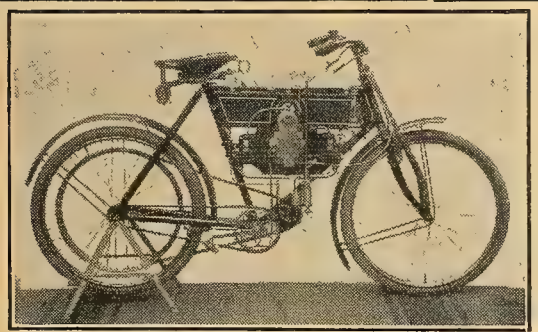
THE

"DOUGLAS"

Is doing more to make motor cycling popular than anything else, because it is noiseless, vibrationless, takes hills as level ground, and gives no trouble on the road.

Send for booklet to the makers—

DOUGLAS BROS., Kingswood, Bristol.



2½/3 h.p. "Fairy" (Magneto Ignition).

What a Colonial Rider thinks of THE FAIRY.

Grahamstown, South Africa, 3/2/08.

"It may interest you to know what satisfaction the Fairy Motor (2½ h.p.) is giving me out here.

The roads are very bad as compared with English ones, and on average of 15 miles an hour is the utmost a large 17 h.p. car can run.

The little Fairy climbs the hills about here with ease, some parts of which are 1 in 5 or 6. This may seem steep, but is a fact. She only needs a touch of the pedals to help her out."

FURTHER PARTICULARS CAN BE HAD ON APPLICATION TO

THE FAIRY MOTOR CO.,

102, Westcombe Hill, Blackheath, S.E.

'Phone 1021 Deptford. Telegrams: "Frostbite, London."

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

All letters relating to advertisements must state distinctly under what heading they appeared, and date of issue.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Genuine Twin Rex, £22, guaranteed, spring forks, low built, goes like a flash; £16 given for 1906 Rex, £13 for 1905 Rex, £11 10s. for 1904 Rex, or £10 10s. for 1903 Rex, in part payment.—Address below.

HALIFAX.—1908 Rex Featherweight, Duplex frame, magneto, splendid climber, new; 25 guineas; exchanges.

HALIFAX. — 1908 3½ h.p. Magneto Tourist Rex, new; why pay fancy prices? 35 guineas; exchanges.

HALIFAX.—1908 Triumph, magneto, all the latest improvements; delivery now; £48; exchanges.

HALIFAX.—1908 3½ h.p. N.S.U., 26in. wheels, long bars, low saddle; £36; liberal exchanges.

HALIFAX.—Twin-cylinder magneto Vindec Special, condition exceptional; cheap, £35; spring forks.

HALIFAX.—2¾ h.p. Phelon and Moore, two-speeds, 26 wheels, carry heavyweight; £27 10s.; any trial.

HALIFAX. — 45s. deposit and six monthly payments of 29s. 6d. secures 2¾ h.p. Excelsior, 3 h.p. Humber, 2¾ h.p. Minerva, 2¾ h.p. De Dion, 2¾ h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 3½ h.p. Rex, 2½ h.p. Aurora, 2¾ h.p. Kerry, 3 h.p. M.M.C.; all guaranteed running order.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

? DID YOU WEARY

of your old machine at Whitsun? Did you envy the riders of the 1908 **TRIUMPHS, BATS, REXES, VINDECS,** and others? Did you yearn to get right up-to-date with a **Two-speed Gear** and **Clutch**—a machine with a starting handle **like a car?** We can provide any of those good things, making a liberal allowance for your old machine, and giving **prompt delivery** of any first-class make, including the best of all—

The WARWICK (Car Style) MOTOR CYCLE.

4 h.p. ball bearing engine, magneto, live axle two-speed gear and clutch, spring forks;

Price 45 Guineas.

Let us send you our interesting pamphlet on "The Evolution of the Motor Cycle," with description of this machine.

The following SOILED and SECOND-HAND MACHINES are in perfect running order, ready for the road, and have the **Premier Certificate** of **Fitness:**

N.S.U., new, 1908, Roc clutch, two-speed gear; cost £70	£55 0
N.S.U., 3½ h.p., 1908, with Sidecar	40 0
REX, 1908, 3½ h.p. de Luxe, 2-speed gear, magneto, accessories	40 0
ROC, 1908 Military Model, clutch and 2-speed, spring forks	40 0
ROC, 5 h.p., magneto, Roc clutch	32 0
TRIUMPH, 1907, 3½ h.p., magneto	35 0
N.S.U. Twin, 6 h.p., magneto, 2-speed gear, splendid machine	35 0
REX, 3½ h.p., coiled only, magneto, Tou ist	33 0
REX DE LUXE, Roc clutch, soiled only	32 0
REX 1907 Lightweight, not used	22 0
VINDEC SPECIAL, 3½ h.p., magneto, Truffault forks, adjustable pulley	30 0
TRIUMPH, 3 h.p. magneto	30 0
VINDEC SPECIAL, 1906, 5 h.p., Truffault	27 0
REX DE LUXE, Roc clutch and gear, perfect order	26 0
ZENITH BICAR, 4 h.p., Whittle belt, free engine	22 0
MINERVA Twin, 4½ h.p., spring fork, absolutely perfect	22 0
TWIN REX, 5 h.p., cantilever seat, grand condition	19 10
N.S.U., 3½ h.p., magneto, fine condition	19 0
ROC, magneto, Roc clutch, spring fork, good condition	19 10
EXCELSIOR, 2¾ h.p.	7 10
KERRY, 4½ h.p., Twin, 2-speed	19 0
QUADRANT, 3 h.p.	9 10
MINERVA, 2 h.p., spring forks, Brooks saddle, tyres like new	9 10
WHITLEY, 3½ h.p.	10 0
JAP, 2½ h.p.	6 0
MINERVA, 1½ h.p., spring fork, good condition	5 10
BROWN 2 h.p., good going order	5 0
CHAMPION, 3 h.p., Trembler coil	6 0
REX TRICAR, faultless, running splendidly	23 0
STEVENS TRICAR, two speeds, free engine, wheel steering	33 0
RILEY 5 h.p. 1907 TRICAR, two speeds, spring frame, wheel steering, coach built, three brakes, run 250 miles, cost £90, grand bargain	55 0

Ask for full particulars of any of the above.

Others constantly arriving. Complete list free on application.

PREMIER ACCUMULATORS.

Sent on 3 Days' Approval.

Specially heavy plates—do not disintegrate.
10 amp. 9/6 } List on
20 ,, 12/6 } application.

Send for pamphlets "On the Choice of a Motor Cycle," "Motor Cycles of 1908," "Everything for the Motor Cyclist."

Ask for our LIST of TYRE BARGAINS.

Premier Motor Agency

Aston Road, BIRMINGHAM.

Telephone: 4310. Telegrams: "Primus," B'ham

MOTOR BICYCLES FOR SALE.

HALIFAX. — 3 h.p. Humber, spray, long bars, low saddle, well cared for, good tyres; £10.

HALIFAX. — Lightweights, in going order, 25s. deposit and six monthly payments of 22s. 6d. secures 2 h.p. Quadrant, 1¾ h.p. Minerva, 2 h.p. Minerva, 2 h.p. Kelecom, 2 h.p. Quadrant, 2 h.p. Humber, 2 h.p. Universal, and 2 h.p. Princeps.—Address below.

HALIFAX.—4 h.p. Antoine, 26 wheels, low frame, trembler, girder forks, very fine mount; £16 10s.

HALIFAX.—Fine 3½ h.p. Rex, long bars, low saddle, good climber; £11 10s., bargain.

HALIFAX. — 5½ h.p. 1907 Rex de Luxe, twin tyre, Roc clutch, magneto, spring forks; £27 10s.; bargain.

HALIFAX.—3½ h.p. Clarendon, vertical engine, footboards, ball bearings to engineshaft, 10 miles non-stop; £13 10s.

HALIFAX.—3 h.p. Hobart, vertical, spray carburetter, trembler coil, splendid condition; £12 10s.

HALIFAX.—3½ h.p. 1906 Rex, spring forks, low frame, foot brake, aluminium finish; £15.

HALIFAX.—3½ h.p. Excelsior, spray, trembler coil, Clincher tyres, good condition, suit sidecar; £16 10s.

HALIFAX.—Twin-cylinder Hadley, 4½ h.p., Calmon and Clinchers, 26 wheels, special finish; £17 10s.

HALIFAX. — 6 h.p. twin Antoine, 26 by 2½ tyres, R.O.M. ignition, guaranteed running order; £22.

HALIFAX. — Twin-cylinder Onaway, V engine, spray, specially low, suit short rider; £22 10s.; spring forks.

HALIFAX. — 4 h.p. Alcyon, fine 26 by 2½ tyres, twin, spring forks, N.S.U., two-speed gear, light and low; £23 10s.

HALIFAX.—3½ h.p. Simms, vertical engine magneto ignition, easy starter, reliable; £17 10s.

HALIFAX.—2¾ h.p. Clyde, vertical engine magneto ignition, splendid condition; £16 10s.

HALIFAX.—3 h.p. Fafnir, special machine long bars, very low, first-class order; £15.

HALIFAX.—3½ h.p. Minerva, spray, girder forks, 26 by 2¼ Clincher A Won; begging at £16 10s.

HALIFAX.—5½ h.p. twin Rex, black finish enamel and tyres equal new, spring forks; £23.

HALIFAX.—3½ h.p. 1906 Rex, spring forks low frame, foot brake, aluminium finish; £15.

HALIFAX. — 3½ h.p. Magneto Rex, spring forks, Rex foot brake, cannot repeat; £18 10s.

HALIFAX.—3½ h.p. Rex, spray carburetter 22in. frame, very powerful machine; £11 10s.

HALIFAX. — 2 h.p. Beeston Humber, belt drive, spring forks, good climber, light and low; £8 17s. 6d.

HALIFAX.—2½ h.p. Calvert, vertical engine spray, 26 wheels, tyres good; bargain £9 9s.

HALIFAX. — 3 h.p. Lloyds, very fine, Palmers, spray carburetter, footboards trembler coil; £9 10s.

HALIFAX.—2¾ h.p. Coventry Eagle, vertical engine, trembler coil, tyres very good; £12 10s.

HALIFAX.—2¾ h.p. F.N., special frame, vertical engine, long bars, low saddle; £1 10s.

HALIFAX.—2½ h.p. Clement-Garrard, light low machine, very good order; bargain, £11.

HALIFAX.—1906 3½ h.p. Minerva, spray girder forks, guaranteed in running order; £15.

HALIFAX Motor Exchange. — Cash, exchange, or extended payments. High grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—All the undermentioned motor cycles are in guaranteed good running, and can be seen on the road at the address.

MAUDE'S. — Zenith Bicar, two speeds, handle starting, newly enamelled and done up by the makers. Now, ye godfathers, how's this at £27.

MAUDE'S.—Zenith Bicar, 4 h.p., free engine, new rear tyre; £21.

MAUDE'S.—Zenette, sprung frame, girder forks, free engine, 3 h.p.; £22.

MAUDE'S.—N.S.U., 6 h.p., magneto, 24in. wheels, B100 saddle; £32.

MAUDE'S.—Rex, 1907 model, 3½ h.p., just been overhauled; £18.

MAUDE'S.—Minerva, 3½ h.p., magneto, spring forks, new rear tyre, 1907 model; £24.

MAUDE'S.—Ariel, 3 h.p., B. and B. carburetter, vertical, 26in. wheels, very good condition; £15.

MAUDE'S.—Werner, twin, 26in. wheels, spring forks, spray, accumulator ignition; £20.

MAUDE'S. — Minerva, 3½ h.p., vertical, M.O.V., spray carburetter; £17.

MAUDE'S.—Minerva, 3½ h.p., 26in. wheels, low built; £18.

MAUDE'S.—Minerva, 2¾ h.p., vertical, new tyres, saddle, silencer, and pedals, thoroughly overhauled and re-enamelled; £12.

MAUDE'S.—Clyde, 2¾ h.p., vertical engine, magneto, Longuemare spray carburetter; £16.

MAUDE'S.—Clarendon, 3 h.p., vertical engine, spray, very good tyres; £11.

MAUDE'S. — 2¾ h.p. Minerva, 1906 model, 26in. wheels; £15.

MAUDE'S.—Rex, 50 guinea model, non-skid to rear, Palmer front; £10 10s.

MAUDE'S.—Bat, 3½ h.p., Bat engine, Longuemare spray, with sidecar; £28, without £23.

MAUDE'S.—Rex, 22in. frame, trembler, 50 guinea model; £10 10s.

MAUDE'S.—Lloyds, 2 h.p., vertical engine, footrests, spray, 26in. wheels; a beauty, £12.

MAUDE'S.—Rex, 3¾ h.p., 1906 model, good condition, standard; £15 15s.

MAUDE'S.—Rex, twin, 6 h.p., cantilever seat, 50 guinea model; £22.

MAUDE'S.—Fafnir, 3 h.p., vertical, spray; £12.

MAUDE'S.—Zedel, 2 h.p., vertical engine, low built, 26in. wheels, as new; £11; to be recommended as a lightweight.

MAUDE'S.—Jap, Phœnix built, good tyres; £9.

MAUDE'S.—Rex, 26in. wheels, low built, spray carburetter, footboards; £14 14s.

MAUDE'S.—Bayliss, 3½ h.p., very good tyres; £11.

MAUDE'S.—Another Bayliss, 3½ h.p., special price £8, good running order.

MAUDE'S.—Humber, 2 h.p., trembler coil, chain drive, good running order; £9.

MAUDE'S.—Singer, 2 h.p., magneto, Singer carburetter; £8.

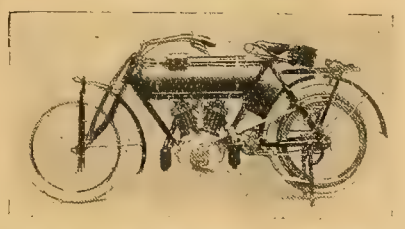
MAUDE'S. — 45s. down and twenty-four weekly payments of 7s. 6d. secures 3½ h.p. Excelsior, 3 h.p. Rex, 2 h.p. Humber, 2¾ h.p. Humber, 2¼ h.p. Jap, or 2 h.p. magneto Singer. Delivery upon first payment.

MAUDE'S Motor Mart, Powell Street, Halifax (behind the Victoria Hall), offer without doubt the very best bargains in motor cycles, all of which are guaranteed in good running order before despatch. Write us and let us have your requirements, and we will quote you best terms for exchange or cash.—Nat. tel., 433.

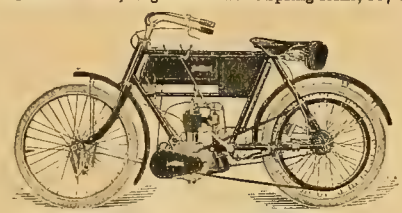
Holidays Over

Granted. But if you wish to prolong your pleasure get a good reliable motor cycle. To do this, it is absolutely essential that you deal with a reliable firm Therefore, give us a trial. We can supply the same article at pounds less than other dealers.

MINERVAS.



2¼ h.p. ..... £29. 3½ h.p. .....£32.
4½ h.p. ..... £39. 7-8 h.p .....£45.
Magneto £5 extra, singles and twins. Spring forks, 50/-.



ARIEL 2½ h.p. LIGHTWEIGHT.
Coil and accumulator ignition ..... 32 Guineas.
Magneto ..... 37 „

WE ARE NOW

in a position to fit all new and standard 4½ h.p. and 7-8 h.p. twin-cylinder Minerva motor cycles with Bosch high tension magnetos at the small extra charge of £5 Let us quote you for new 1908 motor cycles. Good allowances.

3½ h.p.	**VINDEC**	£48	10	0
5 h.p.	**VINDEC**	53	0	0
5 h.p.	**TOURIST**	52	0	0
2¾ h.p.	**MINERVA**	29	0	0
3½ h.p.	**MINERVA**	32	0	0
4½ h.p.	**MINERVA**	39	0	0
7-8 h.p.	**MINERVA**	45	0	0
2¾ h.p.	**F.N.**	35	0	0
4½ h.p.	**F.N.**	50	0	0
3½ h.p.	**TRIUMPH**	48	0	0
3½ h.p.	**SILVER**	39	0	0
3½ h.p.	**BROWN**	37	0	0

Any other make gladly quoted upon request.

TRICARS.

REX Triette. 6 h.p., non-skid	£25	0	0
HUMBER Tricar, chain drive	12	0	0
RILEY, three speeds and reverse, twin-cylinder, 9 h.p.	55	0	0

FORECARS, etc.

Nice Forecar, with front brakes	£5	0	0
BAT Sidecar, good condition	4	10	0

SIDECARS.

Let us quote you for Cash or Exchange for a new 1908 Montgomery Sidecar. Catalogue and terms free

ACCUMULATORS.

A genuine and cheap accumulator at last! Guaranteed twelve months. Genuine "**RIP**" accumulators. Note particularly the prices:

REX size, 3¾ x 2½ x 5¼in.	£0	12	0
ARIEL size, 4 x 1⅞ x 6¼in	0	12	6
MINERVA size, 4¼ x 2⅜ x 6¼in.	0	13	6

Try one on approval. Cash returned if not perfectly satisfactory.

TUBES.

FULLY GUARANTEED.

26 x 2in.	6/-	28 x 2in.	7/-
26 x 2¼in.	7/-	28 x 2¼in.	7/6.
26 x 2½in.	8/-	28 x 2½in.	8/-

Immediate Delivery. Approval.

COVERS.

26 x 2in.	16/-	28 x 2in.	17/-
26 x 2¼in.	17/6.	28 x 2¼in.	18/-
26 x 2½in.	21/6.	28 x 2½in.	22/-

"ALBANY" BELTING.

⅝in. 7d., ¾in. 8d., ⅞in. 9d., 1in. 10d. per foot.

GOODRICH ALL-RUBBER NON-SKID.

26 × 2¼in. cover, £2.

10/- allowed on your old cover in part payment.

Good high tension magneto motors wanted for spot cash.

MAUDE'S MOTOR MART,

POWELL STREET, HALIFAX.

National Telephone 433.

MOTOR BICYCLES FOR SALE.

3 h.p. Motor Bike, Fafnir engine, in good condition; £15 10s.—Rossiter, South Road, Kingswood, Bristol.

3½ h.p. M.M.C., vertical engine, Chater-Lea frame, spring forks, new Palmer cord tyre, powerful lamp and accessories, excellent condition; price £15.—Rowley, Montford, Shrewsbury.

2¾ h.p. F.N., vertical, spray, 26in. wheels. Palmers, £12; 2 h.p. Minerva, M.O.V., inclined, spray, Clippers, £8; both good condition, and cheap. — Lawson, Burley Mount, Leeds.

3 h.p. Quadrant, spring forks, excellent condition, exceptionally good engine, splendid hill-climber, a perfect gem; £15 for quick sale.—Motor, 86, Colvestone Crescent, Dalston, London.

WE Have Instructions from Miss Hind to dispose of a twin Roc, which has been thoroughly overhauled, and is in perfect condition; lowest cash price, £42. — A. W. Wall, Ltd., Birmingham.

POWERFUL 5 h.p. Twin Rex, 1907, late model, used only four times in trials, in two of which it finished first, practically new; £25 10s.—Alexander's Motor Exchange, 110, Lothian Road, Edinburgh.

MOTOR Cycle, Rex de Luxe, only a month in use; offers wanted.—Alexander's Motor Exchange, Edinburgh.

2¾ h.p. Lloyds, in splendid condition; £11 10s.—Alexander's, Edinburgh.

3 h.p. Humber, Dunlop tyres, free engine, very powerful.—Alexander's, Edinburgh.

5 h.p. Antoine, twin, will take a sidecar anywhere, good as new; £20.—Alexander's Motor Exchange, Edinburgh.

SHOP-SOILED N.S.U., 3½ h.p., Quadrant, 3½ h.p., Adler, 3 h.p.; bargains.—Alexander's Motor Exchange, 110, Lothian Road, Edinburgh

2¼ h.p. Riley, splendid condition, tyres perfect, appearance like new, with accessories, £13; also 3½ h.p. 1906 Rex, spring forks, first-class order and appearance, £15. —Mack, 47, Burma Road, Stoke Newington.

1906 2¾ h.p. Brown, brand new condition throughout, absolutely perfect, excellent hill-climber, easy starter, magnificent machine; £15 for quick sale.—Stanton, 86, Colvestone Crescent, Dalston, London.

2¼ h.p. Bat, genuine De Dion engine, spring frame, fitted with a Fit-all two-speed gear, this is a perfect touring machine, and will stop at nothing in hills; price £22 10s.—Wauchope's, 9, Shoe Lane, London, E.C.

F.N., magneto, 2¾ h.p., spring forks, two sets bars and seat-pillars, long and short, speedometer, Lucas Acetyphote lamp, machine perfect condition, and used but little; bargain, £19.—Thomas, Motors, Barnet.

REX, Rex, from 25 guineas and your old machine taken in part payment; send for list of both Triumph and Rex from their agents, Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

2¾ h.p. Motor Cycle, 26 by 2½ Peter-Union tyres, Longuemare carburetter, spares, Sharpe's Universal silencer, Price's stand, trembler coil, not done 500 miles, only requires seeing; £14.—G., 68, Overstone Road, Hammersmith, W.

EDINBURGH.—Scottish readers be sure not to miss our grand show of motor cycles, Stands 126 and 127, Industrial Hall, Scottish National Exhibition; 16 different makes shown by Alexander's Motor Exchange, 110, Lothian Road, Edinburgh.

EDINBURGH Exhibition, Industrial Hall. Stands 126 and 127; finest exhibition of motor cycles ever shown on any one stand, from May till October.—Alexander's Motor Exchange, Lothian Road.

EDINBURGH. — Vindecs, Quadrants, Rexes, Adlers, Motor Reves, Ariels, Zeniths Minervas, Griffons, Nortons, N.S.U., Advances, Rocs, etc., in stock, and to be seen at Alexander's Motor Exchange, Edinburgh.

BRADBURY, wheel 28in. by 2½in., Clincher tyre, clutch, and free-wheel, tank, and levers, chains, horn, stand, Aldington's fan, tail lamp, trembler coil, Alpha voltmeter, wicker forecar seat, springs, 26in. by 2in. wheels, and steering gear, all as new; cash offers.—McEwen, 13, Castle Terrace, Edinburgh.

MOTOR BICYCLES FOR SALE.

2¾ h.p. Minerva, Chater-Lea, Longuemare, trembler, spare valves, rings, etc., Brooks non-skid back (unpunctured), low, fast, and reliable, perfect condition; £14 10s., or near offer. — Holmes, 32, Skipton Street, Harrogate, Yorks.

ARIEL! Ariel!! Ariel!!! — For immediate delivery, the 2¾ h.p. lightweight; write for catalogue and full particulars; also 3 h.p. and 5 h.p. twin-cylinder models; a few 3 h.p. and 5 h.p. twins at clearance prices. —Ariel Works, Bournbrook, Birmingham.

4 h.p. Motor Cycle, Jap engine, Chater-Lea, front Continental once punctured, back Palmer cord, unpunctured, Druids, Wrights, Dermatine, engine new September, reliable and fast, perfect condition; trial; £20, or offers.—Fenton, 7, Trebor Terrace, Reading.

7-9 h.p. Peugeot Twin, in Bat frame, R.O.M. ignition throughout, 1in. Dermatine belt, 2½ Palmer cord and detachable tube on back, Peter-Union on front, handle-bar control, perfect, complete with sidecar; £35; trial by appointment.—13, Weighton Road, Anerley.

2¼ h.p. Minerva, B105, Minerva coil, Peto accumulators, stand, carrier, Palmer and Continental tyres, new cylinder, Rawido, adjustable pulley, footboards and pedals, lamp, horn, spare valves, belt, pulley, etc., splendid running order; no exchange; £12 12s.—E. J. Williams, Rossall House, Barrow-in-Furness.

3½ h.p. Ariel, long bars, low, B105, Advance pulley, spring girder forks, thumb-slides, cut-out, two accumulators, side boxes on carrier, Dunlops (one punctured), many spares, powerful, and absolutely reliable; £20, no offers.—26, Margaretta Terrace, Chelsea.

3½ h.p. N.S.U., guaranteed in perfect condition and unscratched, hardly ridden, all accessories, spares and tools, giving up motoring; genuine bargain, £22 10s. cash, or high-grade push cycle in part payment.—Write, appointment, A., 10, Richmond Road, Bedford.

3½ h.p. Quadrant, 1906 pattern, but very little used, and as new, enamel and plating perfect, spring forks, tyres unscratched, very fast, and splendid hill-climber, with all spares, stand, etc.; price £20, no offers.—G.G., 34, Cambridge Place, Paddington, W.

FULL of all the good qualities necessary to make a perfect motor cycle is the four-cylinder F.N., not a machine to go 90 miles an hour, and —— but goes comfortably all the time, whether it be 4 or 40.—For particulars, trials, etc., write F. Heath, Salford Priors, Evesham.

5½ h.p. 1907 Twin Rex de Luxe, Roc free engine clutch, starting handle, Simms-Bosch magneto, cantilever seat, climb anything, new January, lowest price for cash, £30; also Chater-Lea sidecar, nearly new, cost £12, for £7.—Langham, 276, Holmesdale Road, South Norwood.

2¾ h.p. Bradbury, excellent condition, long bars, two belts, Palmer and Clincher tyres, Longuemare, B.M. coil, switch, Brooks, complete with stand, lamp, etc., with spares, will climb 95 per cent. hills without pedalling, geared 4½ to 1; £14 15s., or nearest.—P. Thorne, Brunswick, Tiverton, Devon.

SPECIAL Bargain.—One Zenith Bicar, the spring frame motor bicycle de luxe, starts with a handle like a car, 3½ h.p. Fafnir engine, two-speed gear; £52 10s. machine, new, being only slightly sop-soiled; price £40 cash; exceptional opportunity.—Zenith Motors, Ltd., Finsbury Park.

CATCH of Season.—7-9 h.p. Peugeot, Chater-Lea fittings, large clutch, handle starting, chain driven, fitted footboards, new tyres (non-skid), Goodrich's, built for side or forecar; reason sale, too powerful for owner; price £40.—Apply, after 6, Motorist, Woodman Hotel, Archway Road, Highgate, N.

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4½ h.p. Twin Minerva Tricar, complete with lamps and spares, in perfect order; £29.—Gylee, 2, Lauriston Gardens, Clapham, S.W.

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1908	2¾ h.p.	**REX** (new)	26 5
1908	3½ h.p.	**REX** Tourist (new) ..	36 15
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1908	5 h.p.	**REX** Tourist (new) ..	42 0
1908	5 h.p.	**REX DE LUXE** (new)	52 10
1908	3½ h.p.	**N.S.U.**, magneto (new)	42 0
1908	5½ h.p.	**N.S.U.**, magneto (new)	52 0
1908	**N.S.U.**	Lightweight (new) ..	34 10
6	h.p. Twin	**ANTOINE**, R.O.M.	22 0
3½	h.p. Magneto	**REX**	18 10
3¼	h.p.	**REX**, spray, 21½ frame	11 10
3½	h.p.	**QUADRANT**, 1906	18 10
5½	h.p. Twin	**REX**, black finish ..	23 0
5½	h.p.	**REX DE LUXE**, magneto	27 10
2¾	h.p.	**PHELON AND MOORE**	27 10
Twin	**REX**,	black finish, as new ..	23 0
6	h.p. Twin	**REX**, non-skids	22 10
4	h.p.	**ANTOINE**, 26 × 2¼ Clinchers	16 10
3	h.p.	**BAT**, like new, two speeds	20 0
3½	h.p.	**SIMMS**, mag., 2¼ Palmers	17 10
6	h.p. 1907 Twin	**REX**, nearly new	23 0
6	h.p. 1906 Twin	**REX**, nearly new	22 0
4-5	h.p. Twin	**ALCYON**	23 10
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3½	h.p.	**MINERVA**, spring forks	17 10
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3½	h.p.	**MINERVA**, 26 × 2¼ Clinchers	16 10
3	h.p.	**GIVAUDAN**, nearly new	16 0
3	h.p.	**ROVER**, 26 × 2¼ Palmers	13 10
3	h.p.	**LLOYD'S**, 26 × 2¼ Palmers	13 10
4	h.p.	**ANTOINE**, spring forks ..	16 0
3½	h.p. 1906	**REX**, spring forks	15 0
3½	h.p.	**MINERVA**, 1906	15 0
2¾	h.p.	**F.N.**, special frame	11 10
3¼	h.p.	**REX**, spray	11 10
2½	h.p.	**MINERVA**, 26 × 2	11 10
1¾	h.p.	**EXCELSIOR**	5 10
3	h.p.	**BROWN**	12 10
2¾	h.p.	**CLEMENT**, very low	11 0
1¾	h.p.	**SIMMS**	7 0
1¾	h.p.	**SIMMS**, magneto	7 0
1¾	h.p.	**MINERVA**	5 15

TRICARS.

5	h.p.	**ASTER**, W.C., 2 speeds	£22 10
4½	h.p.	**ASTER**	19 10
4	h.p.	**ROYAL**, open frame	26 10
8-10	h.p.	**REXETTE**, W.C.	47 10
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9	h.p.	**FAFNIR**, tonneau	£57 10
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HORNER'S, Store Street.—5 h.p. Triette, good condition; accept £24, or exchange.

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HALIFAX.—Twin-cylinder 8-10 h.p. Rexette, special car, two speeds, carry three anywhere; £47 10s.

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RILEY, 4½ h.p., water-cooled, two speeds; £34, or offer.—Write, Lloyd, Suburban House, Winchmore Hill, N.

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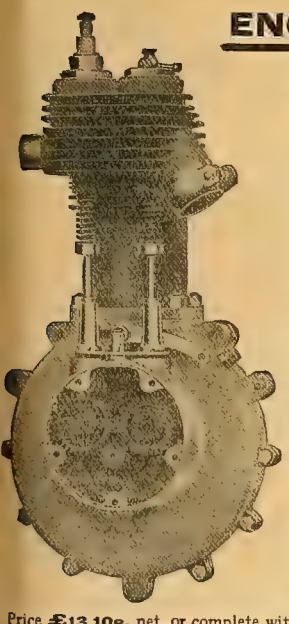

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1¾ h.p. N.S.U., magneto	17 10
1¼ h.p. WOLF, light-weight, 1908 model	15 0
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3½ h.p. VINDEC, two speeds	28 0
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1¼ h.p. MINERVA	5 15
4 h.p. C.I.E., magneto	25 0
3½ h.p. WERNER	12 10
2¾ h.p. PHŒNIX, two speeds, starting handle, chain drive	17 10
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3½ h.p. N.S.U., 26in. wheels	15 0
3½ h.p. N.S.U., magneto, 24in. wheels	16 10
3 h.p. LINCOLN ELK	16 10
6 h.p. JAP, magneto	27 10
3½ h.p. 1905 REX	12 10
2 h.p. QUADRANT	6 10
3 h.p. SINGER, magneto	15 0
2¾ h.p. KERRY	12 10
1¾ h.p. DE DION HUDLON	10 10
2¼ h.p. HUMBER	15 0
2 h.p. HUMBER	5 15
5 h.p. REX	17 10
3½ h.p. ARIEL	9 9
2 h.p. MINERVA	10 10
2 h.p. RALEIGH	7 10
5 h.p. TWIN G.B., magneto	23 10
6 h.p. L. & C., trial machine	17 10
3½ h.p. JAP pattern motor cycle	10 10
3 h.p. MITCHELL	6 10
2¼ h.p. MINERVA	10 10
3½ h.p. CYCLONE	7 10
3 h.p. QUADRANT	12 12
1¾ h.p. WERNER	6 10
2¼ h.p. DE DION	7 10
2½ h.p. ORMONDE	5 0
3 h.p. ASTER	6 10
2¼ h.p. F.N.	12 10
4 h.p. ROC, magneto	20 0
6 h.p. JAP, Osborne free engine	25 0
2¾ h.p. Vertical MINERVA, M.O.V., magneto, in first-class order	18 10
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P.S. DON'T forget to post that card to night.

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RACECOURSE Garage, Doncaster, wants to purchase modern motor cycles for spot cash.

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Not old stock, but new, well-known, up-to-date Motor Cycles for which we are the duly authorised Agents.

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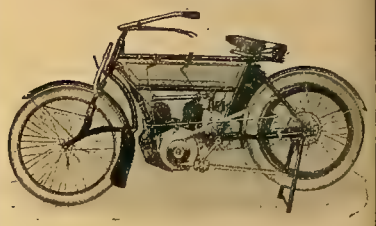

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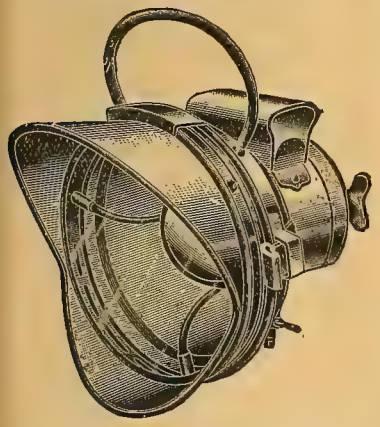

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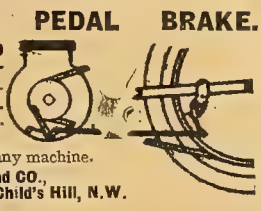

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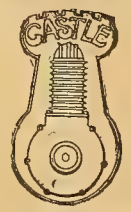

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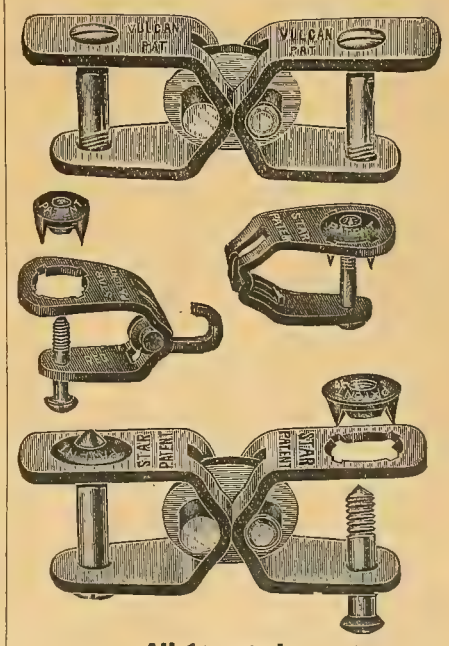

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FOR Sale, Tricar, Humber, 3½ h.p., tyres, engine, all good; £20, or exchange powerful bicycle.—110, Page's Walk, S.E.

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FOR Sale, Montgomery Sidecar, excell condition, cane body, upholste green, flexible joints; £5 10s.—Moore, Curzon Street, Long Eaton.

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WANTED, good second-hand genuine C tinental heavy motor cycle tyre, by 2½.—Address, Cyclist, 45, Swindon Ro Swindon.

FOR Sale, 5½ h.p. Phanomen, 1907, N two-speed gear, spring forks, fan, m neto, Autoclipse lamp, Brooks non-skid back; £35.—63, *The Motor Cycle* Offices, C entry.

FOR Sale, Phœnix Quadcar, four-cylind 12-16 h.p. Fafnir motor, two speeds a reverse, Continental car tyres, non-s drivers; marvellous hill-climber; too fast owner; cost £170 April, 1907, price £95; rea for road; any trial.—395, Moseley Road, B mingham.

FOR Sale, 3½ h.p. N.S.U., little used, t accumulators, new back Peter-Uni cover, unused Riches tube, Acetyph lamp; owner no time for using; £17.— Cazenove Road, Stoke Newington, N.

THE MOTOR CYCLE

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Agents for the Colonies: Gordon and Gotch, London, Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency, Ltd.

Subscription Rates: Home, 6s. 6d.; Foreign, 10s. 10d.; Canada, 8s. 8d. per annum.

Police Traps.

THE recent holidays saw the roads throughout the kingdom teeming with motor vehicles of all descriptions, with the result that the police in many districts, particularly in North Wales, were to be seen at all important road junctions noting the numbers of passing vehicles. In the course of a short tour through North Wales this became so impressed upon our mind that we began to wonder why it was necessary for every motorist, irrespective of the speed he was driving at or the consideration he was showing for other road users, to be stopped by these officious persons for his license to be examined. Is this the sort of treatment motorists may expect when visiting North Wales this year, or is it only a passing whim? It does not appear as though English visitors to the Welsh seaside watering places and inland towns particularly object to motor traffic, but it seems to be the inhabitants of the country who incite the police to adopt these most annoying practices. We have always strongly deprecated inconsiderate driving or excessive speeding, and although there are still a few offenders we cannot see why the cautious driver should be looked upon as a sort of ticket-of-leave person, whose license must be examined at any opportunity which presents itself. Presuming that the police of every village and town throughout the kingdom were to commence this system of license examination, motoring would be absolutely prohibited, and all except the most enthusiastic would relinquish the pastime. In one or two cases we made enquiries with regard to the police methods, and we ascertained that it was not usual for the police to institute measures of this nature, but Bank Holidays are specially selected for the purpose of annoying and pestering motorists, who in many cases find such relaxations from business the only time that they can tour at a distance from home. Consequently the roads are more congested than at other times.

Cases of inconsideration for others were brought to our notice in one or two districts, and it seems very regrettable that these cases cannot be brought more prominently before the various motor associations. Unfortunately, in many instances reckless drivers (they are very much in the minority) are successful in hiding their identity either behind a cloud of dust or by other means which it is unnecessary to explain. These men rouse the ire of the numerous horse owners and breeders, and in one instance we know a police trap was systematically laid at the instigation of horse owners whose cattle had been frightened by motor cars or motor cycles, and, in the case of young horses, they are not again fit for the road for a week. Young horses must be trained, and motorists should act in a proper manner and slow down when approaching restive horses. The police themselves in the majority of cases are not anxious to set traps, but there are exceptions, where police traps are merely money-making affairs, which can only be described as day-light robberies.

Why they are Laid.

THE reason the police set traps and time drivers over stretches of country is because they have received complaints from local residents who do not look upon motors with favour, and are possibly interested in something else which is antagonistic to motoring; in consequence the police are forced to do something to pacify the complainants. A good deal is heard anent the noise of motor bicycles,

but from what we can gather the chief complaint against motor traffic of all kinds is the excessive dust, and motor bicycles do not raise anything like so much dust as cars, however carefully they may be driven or however well they may be constructed to prevent dust raising. The noise of motor bicycles is more or less a bogey. They frighten spirited horses occasionally it is true, but if they are provided with a good silencer the noise of a single cylinder motor bicycle is little or no greater than a single cylinder car with an engine of larger dimensions. Dust, dust, dust is the complaint on every hand, and until something is done to prevent it and inconsiderate drivers refrain from "showing off," police traps will be laid and motorists will be summoned. One association (the Automobile Association) has decided to deal severely with all cases of inconsiderate driving, and our advice is to report such cases to the secretary, giving the number of the motor cycle or car and all particulars. Combined action alone will prevent reckless driving. As soon as drivers and owners who are inclined to use the roads without consideration for others realise that their actions are likely to lead them into trouble and exposure, they will in all probability moderate their methods. No Britisher likes *espionage*, but apparently there is no other way to deal with these gentry who pass others at full speed on the road without sounding a horn, turn sharp corners rapidly, cut in when there is only barely room to pass, refuse to stop when called upon, and generally make a pleasant pastime into purgatory for others. The considerate ones pay for the careless, and all are compelled (unless they are indifferent as to cost) to crawl along at all times irrespective of traffic, in the fear of being trapped and made to pay excessive fines, which come particularly hard on motor cyclists who can ill afford to pay them.

The first tricar arriving at Wetherby in the London-Edinburgh 24 Hours Run. Dr. Brewerton's 10-12 h.p. Lagonda.

FOREIGN TOURING.

ONE of the chief advantages to be obtained from membership of the Auto Cycle Union is that the members have free access to the Royal Automobile Club's Touring Department, which is quite the best organised in the United Kingdom. It is in charge of a capable and courteous official, who possesses a fund of information difficult to find in any one individual. Now that motor cyclists are touring in France and other European countries in larger numbers than usual, they will do well to apply for particulars of membership to Mr. F. Straight, secretary of the Union, 18, Down Street, Piccadilly, W. The Royal Automobile Club's Touring Department will arrange for a motor bicycle to be passed through the customs of most countries free of duty, will allow the tourist to take his tickets in the Club, and generally facilitates his passage. Moreover, valuable information can be obtained as regards roads, and maps of every country are sold at moderate prices. The latest list of Royal Automobile Club publications contains a list of road maps and road books relating to Austria, the Balkans, Denmark, Holland, Italy, Spain, Switzerland, and many lesser known European countries.

CHANGE-SPEED PEDALLING GEARS ON LIGHTWEIGHTS

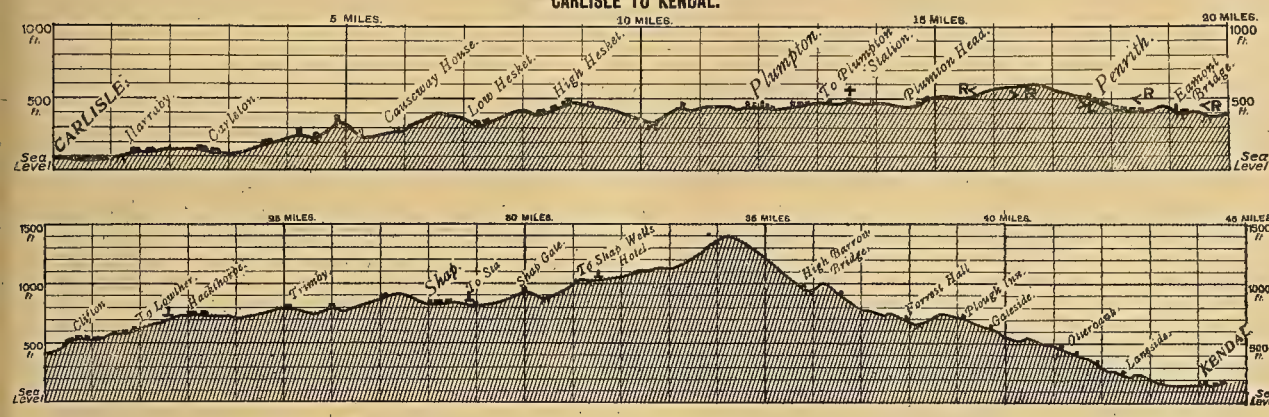
DR. HERBERT R. MAYO, a prominent member of the Great Yarmouth and District M.C.C., who will compete in the End-to-end run, informs us that he has been experimenting with a Moto-Rêve twin-cylinder motor bicycle and three-speed pedalling gear. As very little is known with regard to the behaviour of change speed pedalling gears on motor bicycles, our readers will probably be interested to hear Dr. Mayo's views. The machine is fitted with a Sturmey-Archer tri-coaster hub, but the makers were not confident that it would be satisfactory when in use on a motor cycle. Dr. Mayo says that so far it has stood the work of perpetual free-wheeling quite well, but seems to require flushing out and relubricating at shorter intervals than on pedal cycles, which is only natural, owing to the increased speed. Some of the free-wheels on motor bicycles are very far from satisfactory, as our readers have doubtless found out for themselves. Constant lubrication and flushing is required to keep the free-wheel in proper working order, exposed as it is to dust and mud. Some years ago the Ariel Cycle Co. brought out a very efficient free-wheel cover, and we wonder that more makers have not adopted a similar device. Complete protection is quite necessary.

The A.C.U. End-to-end Trial.

CONTOUR SECTIONS OF THE MOST DIFFICULT PORTIONS OF THE ROUTE.

(*Continued from page 454*).

CARLISLE TO KENDAL.



From the Contour Road Book, printed by arrangement with Messrs. Gall and Inglis.

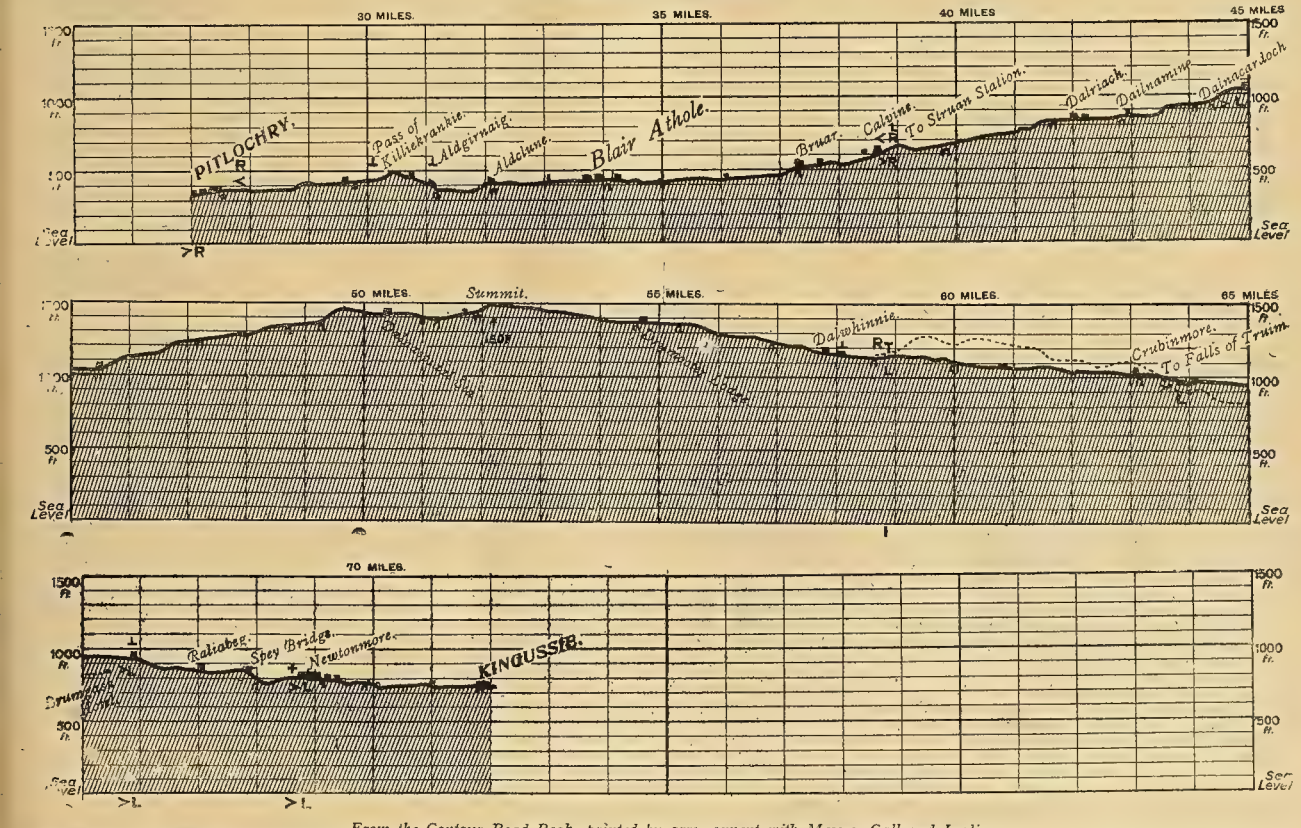
GRADIENTS.—At 4½m., 5½m., and 6m. in 16; 7½m. and 8½m. 1 in 25; 10½m 1 in 23; 20½m. 1 in 19; 31m. 1 in 22; 34m. 1 in 17; 35m. 1 in 17-13-11 (dangerous); 36¾m 1 in 17.

(For Kendal to Carlisle see previous issue.) After the border town the road skirts the coast near Gretna, and is of an almost perfect surface all the way to Lanark. There is one hill at Ecclefechan, 1 in 25, and nothing after that until Beattock, where the road goes over Beattock summit, after rising gradually for ten miles to an altitude of about 1,100 feet. Lanark, 550¾ miles.

It is a little intricate after Lanark and on the way to Stirling. The road is, however, good, except where it passes through the colliery districts, and there is one bad hill at Cumbernauld. Stirling, 586½ miles.

From Stirling to Perth the surface is good except from Stirling to Bridge of Allan, where it is rough with heavy traffic. There is a descent from Auchterarder, and a climb up to Upper Cairnie. Perth, 621¼ miles.

PITLOCHRY TO KINGUSSIE.



From the Contour Road Book, printed by arrangement with Messrs. Gall and Inglis.

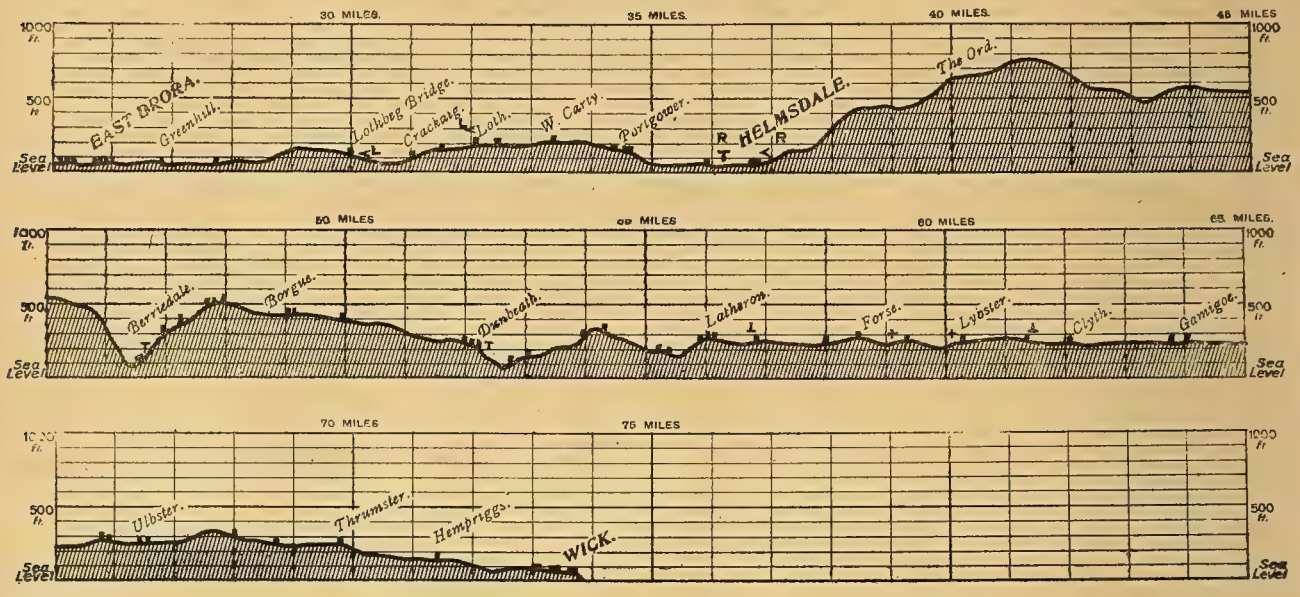
GRADIENTS.—At 30m. 1 in 18-15; 30½m. 1 in 20; 31m. 1 in 20; 31m. 1 in 19-14. With the above exceptions the gradients seldom exceed 1 in 27, but the summit is 1,300 feet above the sea

The A.C.U. End-to-end Trial—

Soon after leaving Perth the grind over the Grampians from Pitlochry to Kingussie commences. From all accounts this is a very bad road, especially in Inverness-shire, where the road is carelessly kept. Parts, viz., from Perth to Dunkeld, are good but bumpy.

After leaving Struan the surface improves on the Perthshire side of the summit, but, taking it all round, this is one of the most difficult stretches, particularly if wind or wet is encountered. The summit is 1,500 feet above sea level. Kingussie, 693 miles. *(This contour should be read from left to right.)*

EAST BRORA TO WICK.



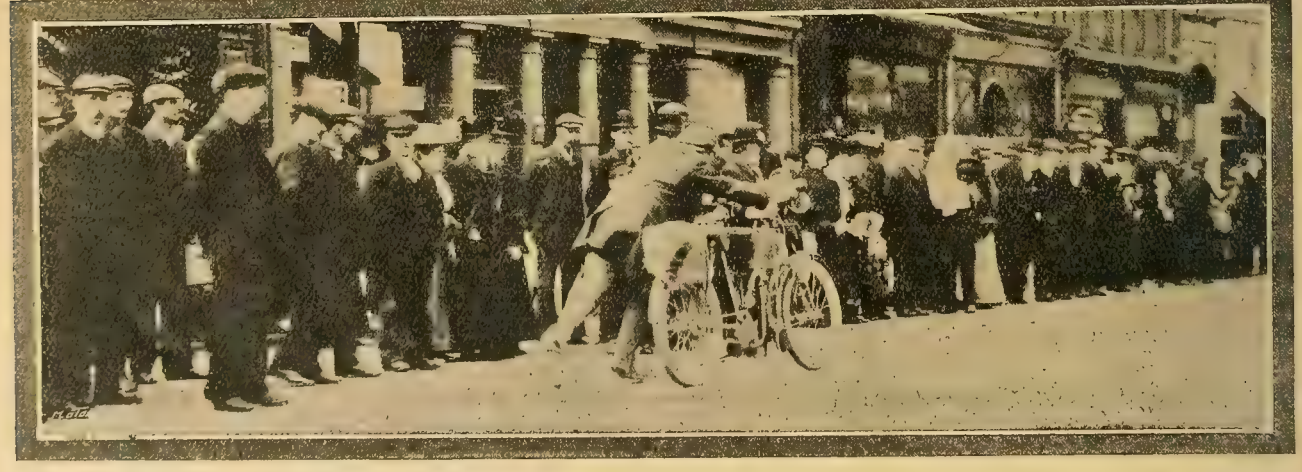
From the Contour Road Book, printed by arrangement with Messrs. Gall and Inglis.

GRADIENTS.—At 28¾m. I in 18-23; 30¾m. I in 29; 34¾m. I in 21. From Helmsdale to Latheron over "The Ord" is most trying, the steeper parts being I in 15. At 46m. Berriedale I in 9 down and I in 12 up; at 52m. Dunbeath I in 14 down and I in 17 up.

After leaving Kingussie, Inverness is the goal. There is a bad stretch from Carrbridge to Freeburn Inn, and one or two hills between Moy and Inverness; as, however, the road is approaching the coast line, it is mostly downhill. Inverness, 736¼ miles.

There are several ferries round about Inverness, the one at Kessock being chiefly patronised by record breakers. If this is taken, the distance to Dingwall is shortened by seven and a half miles; but the Auto Cycle Union Trials' riders will go round to Dingwall as in 1906. 757¼ miles.

All the way from Inverness to John-o'-Groat's the road is close to the sea, and is practically level up to Tain. Between the latter place and Clashmore there are one or two hills, but nothing exceeding 1 in 20. Between Tain and Dornoch there is another ferry, but the competitors go round by road. This runs to Bonar Bridge, and should be followed through Golspie and Brora to Helmsdale, where there is a bad hill up on to the Ord. A good idea of this and Berriedale can be obtained by consulting the contour above. John-o'-Groat's, 893 miles.



A competitor leaving Newcastle-on-Tyne in the M.C.C. London to Edinburgh 24 Hours' Run. No fewer than seventy-five motor cyclists completed the 400 miles run to schedule time.

OCCASIONAL COMMENTS

By "IXION."

Tricar Improvements.

Mr. E. W. Walford is quite right in supposing that the tap on the additional pipe of the secondary jet fitted to a 9 h.p. Riley is fixed in one position after experiment. He is also right about the simplicity of the idea as contrasted with the single drilled throttle. With a single jet, and a throttle drilled to pass the minimum amount of gas to keep the engine going, the extra air inlet has naturally to be shut as swiftly as possible when the main throttle is suddenly shut down to the minimum. The sole merit of the drilled throttle is that it is very inexpensive to fit, and not at all complicated; but it needs greater driving skill, and does not allow the engine to be run so slowly.

My Ideal Carburetter.

My suggestions for an ideal carburetter have provoked quite a host of letters, and I think I shall soon be able to describe a carburetter which fits my requirements almost exactly. The suggestions afford an illustration of the value of riders co-operating with makers, for one manufacturer writes me that two or three of the points I laid down as essential had quite escaped his notice, and will in future be incorporated in his design. Needless to say, they are little items of riding convenience, and had nothing to do with the theory of carburation. Manufacturers of complete motor bicycles invariably employ a good tester nowadays, but manufacturers of accessories are usually content with bench experiments. So it happens that there is a carburetter on the market from which one cannot detach the feed pipe without disturbing the petrol level; another which cannot be tickled without use of tools; several more the jets of which cannot be detached without the use of a very special tool not to be found in many big workshops; and so forth. I think one of the most practical points in my list was No. 9—the construction of unions in such a manner that the nuts can be easily and accurately engaged on their threads without crossing. I once watched one of our most noted riders wasting twenty minutes in a competition attempting to re-attach his feed pipe. It had a very small inaccessible nut, upside down, and as he could not get a good hold of it, nor see what he was doing, he had slightly burred the start of the thread, and so lost a prize. The best makers smooth off the first thread or so of all inaccessible screw engagements, so that the nut or union can first be accurately centred, after which engagement of the threads is automatic, and crossing is impossible. This is especially important with carburetter unions, as the metal is often soft, and a misfit is fatal, as leaks are bound to result. Given the removal of the first threads at the end of the two nuts, such troubles are impossible, provided the rider screws up the nut at each end a turn or so at a time, instead of first screwing one end right home and then trying to engage the other.

Knocking.

We have had a good many letters about engine knocks lately, which inspire me to write down my own experiences of it in a classified form.

I. Temporary; due to—
   - *a*. Caked deposit on piston and cylinder.
   - *b*. Over advance of ignition.
   - *c*. Bad lubricant.
   - *d*. Insufficient supply of good lubricant.
   - *e*. Pre-ignition of any sort.

II. Permanent; due to—
   - *a*. Loose bearings, mainshaft, big end of connecting rod, or gudgeon pin.
   - *b*. Wear of cylinder, common in machines that have been badly driven, or that have at one period of their existence been driven for a long run on bad oil, or with too little oil.

Naval officers at top of Hyden Wood Hill near East Meon, after last week's hill-climbing competition, referred to on page 485.

   - *c*. Too high a gear.
   - *d*. Wear of cylinder due to old age and long distance travelled.

I have never suffered from engine knocking, to my knowledge, from any other cause than the above, and the permanent knocking complained of by some riders is almost invariably due to their having maltreated the engine. It may have been in their earliest rides with it, and the maltreatment may only have extended over a single run. But nowadays when cylinders are so beautifully and lightly cast in the majority of instances, engines will not submit to the illtreatment which the thicker, older pattern cylinders could stand. A few hundred miles of mismanagement of the spark advance, even a single century of careless lubrication, will set up a knock in some machines of to-day that only new bushes or a new cylinder can cure. The practically permanent advance of magneto ignition or small range of retard doubtless affects the wear of connecting rod bearings to some extent, when compared with the greater range of battery ignition. Permanent knocking is more apparent on magneto ignited machines.

TABLE GIVING CUBICAL CAPACITY OF ALL SINGLE-CYLINDER ENGINES

having bores of from 50 to 90 mm. and strokes of from 50 to 100 mm.

For Multi-cylinder Engines, multiply by number of cylinders.

Bore in Millimetres.	Stroke in Millimetres.																									Bore in Millimetres.
	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	
	Capacity in Cubic Centimetres.																									
50	98	100	102	104	106	108	110	112	114	116	118	120	122	124	126	128	129	131	133	135	137	139	141	143	145	50
51	102	104	106	108	110	112	114	116	118	120	122	125	127	129	131	133	135	137	139	141	143	145	147	149	151	51
52	106	108	110	112	115	117	119	121	123	125	127	129	132	134	136	138	140	142	144	146	149	151	153	155	157	52
53	110	112	115	117	119	121	123	126	128	130	132	134	137	139	141	143	146	148	150	152	154	157	159	161	163	53
54	114	117	119	121	124	126	128	130	133	135	137	140	142	144	146	149	151	153	156	158	160	163	165	167	169	54
55	119	121	123	126	128	131	133	135	138	140	142	145	147	150	152	154	157	159	161	164	166	169	171	173	176	55
56	123	126	128	130	133	135	138	140	143	145	148	150	153	155	157	160	162	165	167	170	172	175	177	180	182	56
57	127	130	133	135	138	140	143	145	148	150	153	156	158	161	163	166	168	171	173	176	179	181	184	186	189	57
58	132	135	137	140	143	145	148	150	153	156	158	161	164	166	169	172	174	177	180	182	185	187	190	193	195	58
59	137	139	142	145	148	150	153	156	158	161	164	167	169	172	175	178	180	183	186	189	191	194	197	199	202	59
60	141	144	147	150	153	155	158	161	164	167	170	172	175	178	181	184	187	189	192	195	198	201	203	206	209	60
61	146	149	152	155	158	161	164	166	169	172	175	178	181	184	187	190	193	196	199	202	204	207	210	213	216	61
62	151	154	157	160	163	166	169	172	175	178	181	184	187	190	193	196	199	202	205	208	211	214	217	220	223	62
63	156	159	162	165	168	171	174	178	181	184	187	190	193	196	199	203	206	209	212	215	218	221	224	227	231	63
64	161	164	167	170	174	177	180	183	186	190	193	196	199	203	206	209	212	215	219	222	225	228	232	235	238	64
65	166	169	172	176	179	182	186	189	192	196	199	202	206	209	212	216	219	222	226	229	232	236	239	242	245	65
66	171	174	178	181	185	188	191	195	198	202	205	209	212	215	219	222	226	229	233	236	239	243	246	250	253	66
67	176	180	183	187	190	194	197	201	204	208	211	215	218	222	226	229	233	236	240	243	247	250	254	257	261	67
68	181	185	189	192	196	200	203	207	211	214	218	221	225	229	232	236	240	243	247	250	254	258	261	265	269	68
69	187	191	194	198	202	206	209	213	217	221	224	228	232	235	239	243	247	250	254	258	262	265	269	273	277	69
70	192	196	200	204	208	212	215	219	223	227	231	235	239	242	246	250	254	258	262	265	269	273	277	281	285	70
71	198	202	206	210	214	218	222	226	230	233	237	241	245	249	253	257	261	265	269	273	277	281	285	289	293	71
72	203	208	212	216	220	224	228	232	236	240	244	248	252	256	260	265	269	273	277	281	285	289	293	297	301	72
73	209	213	218	222	226	230	234	238	243	247	251	255	259	264	268	272	276	280	285	289	293	297	301	305	310	73
74	215	219	224	228	232	236	241	245	249	254	258	262	267	271	275	279	284	288	292	297	301	305	310	314	318	74
75	221	225	230	234	238	243	247	252	256	261	265	269	274	278	283	287	291	296	300	305	309	314	318	322	237	75
76	227	231	236	240	245	249	254	258	263	268	272	277	281	286	290	295	299	304	308	313	317	322	327	331	336	76
77	233	237	242	247	251	256	261	265	270	275	279	284	289	293	298	303	307	312	317	321	326	331	335	340	344	77
78	239	244	248	253	258	263	267	272	277	282	287	291	296	301	306	310	315	320	325	330	334	339	344	349	353	78
79	245	250	255	260	265	269	274	279	284	289	294	299	304	309	314	319	323	328	333	338	343	348	353	358	363	79
80	251	256	261	266	271	276	281	286	291	296	301	307	312	317	322	327	332	337	342	347	352	357	362	367	372	80
81	258	263	268	273	278	283	288	294	299	304	309	314	319	325	330	335	340	345	350	355	361	366	371	376	381	81
82	264	269	275	280	285	290	296	301	306	311	317	322	327	333	338	343	348	354	359	364	370	375	380	385	391	82
83	270	276	281	287	292	297	303	308	314	319	325	330	335	341	346	352	357	362	368	373	379	384	389	395	400	83
84	277	283	288	294	299	305	310	316	321	327	332	338	343	349	355	360	366	371	377	382	388	393	399	404	410	84
85	284	289	295	301	306	312	318	323	329	335	340	346	352	357	363	369	374	380	386	391	397	403	408	414	420	85
86	290	296	302	308	314	319	325	331	337	343	348	354	360	366	372	377	383	389	395	401	407	412	418	424	430	86
87	297	303	309	315	321	327	333	339	345	351	357	363	368	374	380	386	392	398	404	410	416	422	428	434	440	87
88	304	310	316	322	328	334	340	347	353	359	365	371	377	383	389	395	401	407	413	420	426	432	438	444	450	88
89	311	317	323	330	336	342	348	355	361	367	373	379	386	392	398	404	410	417	423	429	435	442	448	454	460	89
90	318	324	331	337	343	350	356	363	369	375	382	388	394	401	407	413	420	426	432	439	445	452	458	464	471	90

TABLE GIVING CUBICAL CAPACITY OF ALL SINGLE-CYLINDER ENGINES

having bores of from 50 to 90 mm. and strokes of from 50 to 100 mm.

For Multi-cylinder Engines, multiply by number of cylinders.

Bore in Millimetres.	Stroke in Millimetres.																									Bore in Millimetres.
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
	Capacity in Cubic Centimetres.																									
50	147	149	151	153	155	157	159	161	163	165	167	169	171	173	175	177	179	181	183	184	186	188	190	192	194	196	50
51	153	155	157	159	161	163	165	167	169	171	174	176	178	180	182	184	186	188	190	192	194	196	198	200	202	204	51
52	159	161	163	166	168	170	172	174	176	178	180	183	185	187	189	191	193	195	197	200	202	204	206	208	210	212	52
53	165	168	170	172	174	176	179	181	183	185	187	190	192	194	196	198	201	203	205	207	209	212	214	216	218	220	53
54	172	174	176	179	181	183	185	188	190	192	195	197	199	201	204	206	208	211	213	215	217	220	222	224	227	229	54
55	178	180	183	185	188	190	192	195	197	199	202	204	207	209	211	214	216	218	221	223	226	228	230	233	235	237	55
56	185	187	190	192	194	197	199	202	204	207	209	212	214	217	219	222	224	226	229	231	234	236	239	241	244	246	56
57	191	194	196	199	201	204	207	209	212	214	217	219	222	224	227	230	232	235	237	240	242	245	247	250	253	255	57
58	198	201	204	206	209	211	214	217	219	222	224	227	230	232	235	238	240	243	246	248	251	254	256	259	261	264	58
59	205	208	210	213	216	219	221	224	227	230	232	235	238	240	243	246	249	251	254	257	260	262	265	268	271	273	59
60	212	215	218	220	223	226	229	232	235	237	240	243	246	249	252	254	257	260	263	266	269	271	274	277	280	283	60
61	219	222	225	228	231	234	237	240	242	245	248	251	254	257	260	263	266	269	272	275	277	280	283	286	289	292	61
62	226	229	232	235	238	241	244	247	250	254	257	260	263	266	269	272	275	278	281	284	287	290	293	296	299	302	62
63	234	237	240	243	246	249	252	256	259	262	265	268	271	274	277	280	284	287	290	293	296	299	302	305	309	312	63
64	241	244	248	251	254	257	260	264	267	270	273	277	280	283	286	289	293	296	299	302	306	309	312	315	318	322	64
65	249	252	255	259	262	265	269	272	275	279	282	285	288	292	295	299	302	305	309	312	315	318	322	325	328	332	65
66	256	260	263	267	270	274	277	280	284	287	291	294	298	301	304	308	311	315	318	321	325	328	332	335	339	342	66
67	264	268	271	275	278	282	285	289	293	296	300	303	307	310	314	317	321	324	328	331	335	338	342	345	349	352	67
68	272	276	280	283	287	290	294	298	301	305	309	312	316	319	323	327	330	334	338	341	345	349	352	356	359	363	68
69	280	284	288	292	295	299	303	307	310	314	318	321	325	329	333	336	340	344	348	351	355	359	363	366	370	374	69
70	289	292	296	300	304	308	312	315	319	323	327	331	335	339	342	346	350	354	358	362	366	369	373	377	381	385	70
71	297	301	305	309	313	317	321	325	329	332	336	340	344	348	352	356	360	364	368	372	376	380	384	388	392	396	71
72	305	309	313	317	322	326	330	334	338	342	346	350	354	358	362	366	370	374	379	383	387	391	395	399	403	407	72
73	314	318	322	326	331	335	339	343	347	351	356	360	364	368	372	377	381	385	389	393	398	402	406	410	414	418	73
74	322	327	331	335	340	344	348	353	357	361	365	370	374	378	383	387	391	396	400	404	408	413	417	421	426	430	74
75	331	336	340	344	349	353	358	362	367	371	375	380	384	389	393	398	402	406	411	415	420	424	428	433	437	442	75
76	340	345	349	354	358	363	367	372	376	381	385	390	395	399	404	408	413	417	422	426	431	435	440	444	449	454	76
77	349	354	358	363	368	372	377	382	386	391	396	400	405	410	414	419	424	428	433	438	442	447	452	456	461	466	77
78	358	363	368	373	377	382	387	392	397	401	406	411	416	420	425	430	435	440	444	449	454	459	463	468	473	478	78
79	368	372	377	382	387	392	397	402	407	412	417	421	426	431	436	441	446	451	456	461	466	470	475	480	485	490	79
80	376	382	386	392	396	402	407	412	417	422	427	432	437	442	447	452	457	462	467	472	476	482	487	493	498	503	80
81	386	392	397	402	407	412	417	422	428	433	438	443	448	453	459	464	469	474	479	484	489	495	500	505	510	515	81
82	396	401	407	412	417	422	428	433	438	444	449	454	459	465	470	475	480	486	491	496	502	507	512	517	523	528	82
83	406	411	417	421	427	433	438	443	449	454	460	465	471	476	481	487	492	498	503	508	514	519	525	530	536	541	83
84	416	421	427	432	438	443	449	454	460	465	471	476	482	488	493	499	504	510	515	521	526	532	537	543	549	554	84
85	425	431	437	443	448	454	460	465	471	477	482	488	494	499	505	511	516	522	528	533	539	545	550	556	562	567	85
86	436	441	447	453	459	465	470	476	482	488	494	499	505	511	517	523	529	534	540	546	552	558	563	569	575	581	86
87	446	452	458	464	470	475	481	487	493	499	505	511	517	523	529	535	541	547	553	559	565	571	577	582	588	594	87
88	456	462	468	474	480	486	493	499	505	511	517	523	529	535	541	547	553	559	566	572	578	584	590	596	602	608	88
89	466	473	479	485	491	498	504	510	516	522	529	535	541	547	554	560	566	572	578	585	591	597	603	610	616	622	89
90	477	483	490	496	502	509	515	522	528	534	541	547	553	560	566	572	579	585	592	598	604	611	617	623	630	636	90

QUESTION & REPLIES.

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied with a stamped addressed envelope for reply.**

Climbing Powers of a 1¾ h.p. Machine.

[?] I am thinking of buying a 1¾ h.p. F.N. motor bicycle. I weigh nine stones, and should want it to take me up a hill about four miles long. I can ride it on a pedal bicycle. I should be glad to know if you think this machine powerful enough.—P.N.P.

We should say the machine in question would climb the gradient with ease if, as you say, you can manage it on a pedal bicycle.

A Question of Gear Ratio.

[?] I have recently bought a 3½ h.p. Brown motor cycle (magneto) which runs admirably in the country when I can let it go, but when in town or on greasy roads I find gear too high (3¾ to 1). I want it for use largely in getting to and from business, about one and a quarter miles through town and four in the country. What do you suggest as the best means of overcoming difficulty with least wear to engine, and also economy of original cost and running?—E.K.

Undoubtedly the trouble is due to the gear being too high. The cheapest way out of the difficulty is to fit an adjustable pulley, or to lower the gear and fit a clutch.

Motor Cycle Speedometers.

[?] Is there such a thing as a reliable speedometer for a 1908 Triumph motor bicycle? I presume it should register at least 45 m.p.h., as the machine has a 4 to 1 gear. The only one I know of is driven from the edge of the front wheel rim and registers only 30 m.p.h. This, of course, is useless, as the bicycle has a peculiar pattern of spring forks, and the mileage registered is too low. I should be greatly obliged if you could let me know of a good speedometer, and also where I can get a mirror to fix to the handle-bar?—W.H.C.

Good speed indicators are the Jones, sold by Messrs. Markt and Co., 6, City Road, E.C., and the Cowey, sold by the Cowey Speed Indicator Co., 1, Albemarle Street, Piccadilly, W. Both register up to fifty miles an hour. A nicely-finished handle-bar mirror can be obtained from Sprason Bros., St. George's Place, Great Hampton Row, Birmingham.

Even Running with Two Cylinders.

[?] I have a twin-cylinder 6 h.p. Riley water-cooled engine, trembler coils. I start the engine running at a certain rate, and one cylinder seems slower than the other. I take the wire from the front plug and the back cylinder fires at a good rate. Without moving the spark, air, or gas levers, I replace the wire to the front plug, but disconnect the back plug, and I find that the front cylinder is much slower than the back one. Please advise me how to get both cylinders running at the same rate? I have cleaned the platinum points of the coil thoroughly, and tried to remedy the fault by altering the adjustment of the screw, but as soon as I move it from one position, either forward or backward, the front cylinder will not fire at all. The accumulators are fully charged, and the plugs E.I.C.—L.H.S.

To synchronise the firing of both cylinders requires a little care when a separate trembler blade is used for each. The adjustment of the contact breaker screws naturally affects the speed also. Try the platinum screw for the front cylinder slightly harder on. If this makes no improvement we can only suppose the compression of the two cylinders is unequal, or the coil for the front cylinder needs attention. To determine if this is the case, change the wiring of the coils, *i.e.*, connect the present front cylinder coil to the back cylinder and *vice versa*. If then the back cylinder runs the slower, you will know the coil is at fault.

Worn Firing Cam and Dry Battery as a Standby.

[?] (1.) My 3⅜ h.p. Rex runs well on the level but is weak on hills. Everything seems in proper order, but I notice that the firing cam is rather worn. If I fit a new one would it improve the running? (2.) Is it possible to connect up to a two-way switch with one accumulator and one dry battery (trembler coil)? My idea is to run on the accumulator, and to have the dry battery as a stand-by.—J.A.

(1.) Probably if you fit a new firing cam it will improve the running considerably. (2.) It is quite possible to connect up a dry battery by means of a two-way switch to work with a trembler coil. The connections should be made in exactly the same manner as they would be for two accumulators.

In the long-distance trial for industrial vehicles in France, two Mototri-Contals completed the test with very little attention and at a very low running cost. They are shown above passing through Pont-sur-Yonne.

A Novice's Queries.

(1.) I have a 2½ h.p. Alldays. The 26in. wheels turn once to 5¼ turns of the engine pulley. Is that too high for a hilly district? Please tell me how to alter the gear if wrong? (2.) Would aluminium paint improve the appearance of crankcase? Do you recommend canvas and rubber belts?—A.C., Hastings.

(1.) The gear would be about right if your weight does not exceed eleven stones. If too high, you had better fit a smaller engine pulley. (2.) You can paint the crankcase with aluminium paint if you like, but we should not think it worth while. It is better to keep it clean by washing it with petrol. Canvas and rubber belts are quite satisfactory.

Advantages of Adjustable Bottom Air.

I have a 3 h.p. N.S.U. magneto, which is very hard to start, but when it is once off it goes perfectly, from a walking pace to thirty odd miles per hour. Do you think altering float needle would make any difference, as I have tried all ideas as to plug, shutting off air, and putting paraffin through cock? The engine starts well on the stand with one push down of pedal, but will not start on the road without a lot of exertion.—W.S.C.

Either you fail to put the spark lever in the proper position for starting on the road, or you do not close the extra air lever, or the spray is choked. You will find an adjustable shutter on the side of the carburetter. Almost close this before starting and open it immediately afterwards, and you will find that the engine will start much easier.

Adjustment of Magneto and Carburetter.

(1.) Kindly advise me on the following points: Where can I get some printed information regarding adjustment, etc., of the Eisemann magneto with coil as fitted to 1907 2¾ h.p. Minerva motor bicycle? The Minerva catalogue does not give the information I require. (2.) My carburetter (Longuemare) drips petrol from base of mixing and spraying chamber. I am told this can be stopped by grinding in the needle valve. Is this advice correct, and how should the needle be manipulated in order to grind it properly?—LC 5209.

(1.) The Eisemann system of magneto ignition is extensively dealt with in "Motor Cycles and How to Manage Them." If you find this information insufficient kindly write to us again. (2.) If the carburetter drips when the machine is standing, either the needle requires grinding in or the petrol level is too high. A good way to grind the needle valve in would be to fix the stem in the chuck of a small drill, put a little crocus powder mixed with oil on the seating and revolve the drill evenly and carefully, lifting it from time to time to avoid making any "rings" on the seating. Hold the drill perfectly upright. The point should prevent any petrol entering the chamber when fuel tap is turned on.

Speed in Hill-climbing.

I have a 3½ h.p. (80 by 80) Fafnir engine and carburetter in Chater No. 6 frame, trembler coil, automatic air valve on carburetter, gear 4⅝ to 1, 26in. wheels, m.o.v. I am unable to get up the hills in this neighbourhood, none of which are very stiff, at high speed; for instance, a 3 h.p. (75 by 80) machine, same make and gear, heavier rider, generally leaves me struggling far behind. Immediately I commence the climb the engine slows down and labours sluggishly up the hill. I generally manage to get up, but at nothing like the speed I should do. I have done the following: Set trembler to a good clear buzz, taken off the automatic air intake and fitted a cover to the hole, to operate with a lever and find engine will take all the air at any speed in addition to what it takes through three small holes which I have bored in the induction pipe. Examined timing and find spark occurs about ¼in. on down stroke when fully retarded. Charge carried about seven-eighths of the stroke. I have cleaned carburetter out, it floods and runs over at jet when valve is tickled. I cannot even on the level get engine really racing.—A.B.

You do not mention if you have tested the compression; if the valves need grinding you will not obtain much speed on hills. You might try the effect of a new and stronger exhaust valve spring, and see if any improvement is obtained. Also measure the amount of opening of the inlet valve. If more than ⅛in. reduce it to this amount. Lastly, we should be inclined to think the coil is not a high speed one. The contact breaker on your engine works better with a plain coil.

Crankcase Joints, Magneto Contacts, and Sidecars.

(1.) I have a 6 h.p. twin N.S.U., new last June. I recently took the engine down, and before putting it together I made fresh joints of brown paper and soaked them in linseed oil for a few hours, but after putting it together I find oil is thrown out. Can you tell me how to cure it? A friend has advised me to put fish glue between the joints of the crankcase and cylinders, as my engine was quite tight before I took it down. (2.) My machine has a high tension magneto. Will you tell me where are the platinum contacts on it, as I think they may want adjusting a little, as my machine is getting difficult to start? (3.) I am thinking of buying a new sidecar. Which would you advise me to buy, as I have never had anything to do with sidecars yet?—J.H.K.

The A.C.U. Open Hill Climb. H. Newey (3½ h.p. L.M.C.) approaching the top of Sutton Bank, which he failed to reach by only a few yards.

(1.) Brown paper soaked in boiled linseed oil is used by most manufacturers. If, however, your attempt has been a failure to render the crankcase oil-tight you might have another try, and if this is not successful use fish glue. (2.) Slide away spring which holds the contact breaker cover in position. This will reveal the platinum points; clean these up with a jeweller's file, brush away all filings afterwards with a clean brush soaked in petrol, and then try a new fibre ring, as the present one may be slightly worn. This can be obtained from the Bosch Co., 23, Store Street, Tottenham Court Road, W.C. Other hints on the care of the magneto will be found in "Motor Cycles and How to Manage Them." (3.) If you care to send us a numbered list of the sidecars which you think would suit you, keeping a copy by you for reference, we will place them in order of merit.

HINTS AND TIPS FOR MOTOR CYCLISTS.

By Road Rider.

(Continued from page 434.)

IGNITION TROUBLES.

(For high tension magneto, see previous paragraphs.)

1. Loose wire.
2. Wire snapped in two.
3. Wire broken under insulation.
4. Current shorting through thin insulation.
5. Terminals shorted by moisture or metal in contact with them.
6. Cells exhausted below 3.8 volts.
7. Sparking plug broken or short-circuited; the latter internally by cracked porcelain or mica, or externally by damp or carbon.
8. Contacts on contact breaker greasy, pitted, or missing. Short circuit at contact breaker by wet or lid of contact breaker bent. Bad earth return through camshaft. Adjustment of blade or screw slipped.
9. Connection on coil broken below terminal screw.
10. Blade of trembler coil stuck through pitting or maladjustment.

CARBURETTER TROUBLE.

An absolute stoppage due to the carburetter can only be brought about by a choked passage.

ENGINE TROUBLE.

For sudden stoppages, see if compression is good; if not—

1. A valve has broken.
2. A valve is prevented from closing.
3. Piston is broken.
4. Cylinder is cracked.

If engine is stiff or jammed—

1. It is near seizing from under-lubrication, or oil is bad. Loosen with paraffin, lubricate fully, revolve by hand till free.
2. It is sadly overheated.
3. Crankpin is bent.
4. Connecting rod is bent.
5. Some internal part has come adrift, *e.g.*, lockscrew of gudgeon pin; take engine down and examine, particularly timing gear and gudgeon fastenings.

A long list of paragraphs referring to unusual derangements are appended, but, as a rule, if the spark is present, valves working, and petrol reaching the carburetter, the machine will go.

AIR LOCK IN PETROL TANK.

224. Unless the stopper of the petrol tank be pierced with a fine hole stoppages will ensue through the spirit being retained in the tank by a vacuum. Every stopper should have a tiny hole protected by a baffle to prevent petrol spraying out when tank is full. A smart idea is to solder a small helmet or other lubricator over the hole.

BALL BEARINGS.

225. Balls are easily replaced in a dismantled bearing by lining it with grease. In adjustments, tighten cone till the bearing feels as tight as if it were solid, free from all vestige of movement, and then slack it back a quarter of a turn.

If a ball be broken or lost it is preferable to leave a ball out rather than fit one too large.

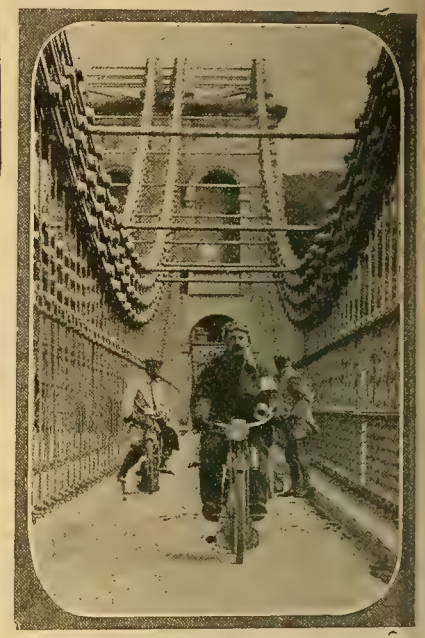
BUCKLED WHEELS.

226. There is no need to push or cart a machine because a wheel has been buckled, but if badly buckled the pace must be kept low. Remove wheel, use a stone as an anvil, and a big wrench as a hammer if a proper hammer is unobtainable. Hammer rather on each side of kink than on kinked portion itself. By these means the wheel can be made rideable, but on reaching a repairer it is advisable to have the wheel accurately trued and spokes tightened up or replaced. If rim is cracked get a new one.

CLEANING COACHWORK ON TRICARS.

227. The secret of keeping coachwork in a smart condition is to clean it promptly and to sop the dirt off.

Neither grease, dust, nor mud should be left on it till morning.



Three competitors in the Coventry-Holyhead 12 hours' run crossing Menai Bridge, the connecting link between Carnarvonshire and the Isle of Anglesea. The foremost rider is A. Wright.

No rubbing or scraping should enter into the cleansing process.

As soon as the night's destination is reached all dirt should be gently sopped off with a large carriage sponge, or with a very gentle douche pipe. For the last wash the sponge should be rinsed till it is absolutely clean. The coachwork should finally be dried with soft stuff, and polished with Selvyt.

CLEANING THE CRANKCASE.

228. Interior.—No lubricating oil is entirely free from impurities, and so the crankcase should be periodically flushed out with paraffin, to prevent some speck of foreign matter choking one of the minute oilways that carry lubricant to the bearings. Some engines are provided with a screw plug for paraffin injections; on others the pipe union must be disconnected. First run out all dirty oil, then inject one gill of paraffin; close openings to crankcase, and pedal engine round on the stand for ten minutes. Drain out paraffin, relubricate with four charges of engine oil, and pedal on the stand for a few minutes to work fresh oil into all bearings before the engine is run.

Exterior.—Motor cycles often leave an unpleasant smell behind simply because the warm crankcase is smeared with mud and grease. Swill the aluminium with waste petrol or paraffin, and scrub it with a stiff bristle brush.

(To be continued.)

M.C.C. London-Edinburgh 24 Hours' Run. Competitors arriving at the Wetherby control.

Being the opinions of medical men who are actual or prospective users of motor cycles.

(*Continued from page 459.*)

Cyril Howkins.

Motor cycling is, in my opinion, a most healthy pastime. One of the apparent drawbacks against it is the vibration. This has been shown to be greatly exaggerated, and is in no way injurious to health (*British Medical Journal*, 1907). It is one of the best antidotes to worry I know of, and to anyone of a mechanical turn of mind is a constant source of interest and amusement. The best type of motor cycle for a general practitioner depends to a certain extent on the size of his practice and the nature of the country. For a country district I consider that a 3½ h.p. of good make, magneto ignition, with a two-speed gear and free engine, would be most suitable.

Douglas Gray, M.B. Lond., M.R.C.S., etc.

Motor cycling is a source of great pleasure, and is an extremely healthy and invigorating pastime, always provided that the speed and length of journeys are kept within reasonable limits. At fast speeds it is not the vibration which is so much injurious as the constant tension of the mind

Dr. Douglas Gray.

always on the look out for possible dangers. I use the motor cycle a great deal in my practice, chiefly for the time saved in the long-distance visits on good roads. The cost of upkeep is almost negligible. Last year my bills came to £8 for 2,200 miles, including everything, licenses, petrol, repairs, etc. I use a 3¾ h.p. N.S.U., magneto, spring forks, two-speed gear, and free engine and Millennium stand. On no account would I be without the speed gear and free engine, and the stand is invaluable, as it does not require handling, but is operated instantly by the foot. I use a heavy high-powered machine, as the district here (Bolton) is hilly and the roads very rough. On good level roads a low-powered machine with free engine would be the thing.

C. B. Gervis, M.D.

Having ridden a motor cycle in my professional work for the last six years, my experiences may be of interest. For town work, or paying visits close to home, the motor cycle is not suitable, but for country work it is invaluable. Undoubtedly it is considerably cheaper than a car, or a horse and trap, and as healthy as either. For hilly districts I think the only suitable machine is one with a two-speed gear. Personally, I ride a 3½ h.p. Phœnix Cob, two speeds, and am very pleased with it; it will climb anything. The dropped frame is an advantage, as one can wear a long coat wrapped round the knees. For level country probably a lightweight machine would be sufficient.

E. J. Parry.

(1.) I consider motor cycling to be most beneficial to one's health, provided it is not overdone, and one has a first grade modern machine. One hundred miles per diem is sufficient for most people. (2.) I find a motor cycle of very great use in my profession, and always use it in preference to my small car whenever the weather permits. (3.) Upkeep of a motor cycle variable according to owner. (4.) I do not think one could find a more suitable machine for a doctor than the one I now possess, namely, a 3½ h.p. 1908 Triumph. One can always have a clutch fitted if one does not care to mount in the usual way.

Dunelmian.

(1.) I consider motor cycling a healthy pastime, especially for a town worker, but some other pastime in conjunction involving more exercise is desirable. (2.) Very useful, especially for a busy country practitioner. It is twice as fast as cycling, and three times as fast as riding or driving; hence it saves time and consequently fatigue. Have always found it reliable. (3.) The running expenses and cost of upkeep are infinitesimal compared with those of a horse. (4.) Speaking generally, the heavy powerful type for country use. A medical man must start his machine easily anywhere—the middle of a hill, in a field, or on a farmer's track, therefore high power, free engine, speed gear, and footboards.

F. Hall.

I find motor cycling in a medical practice much more satisfactory and cheaper than any other means of locomotion. A horse and trap cost me £100 a year, hiring a hansom about the same, whereas my motor cycle does not

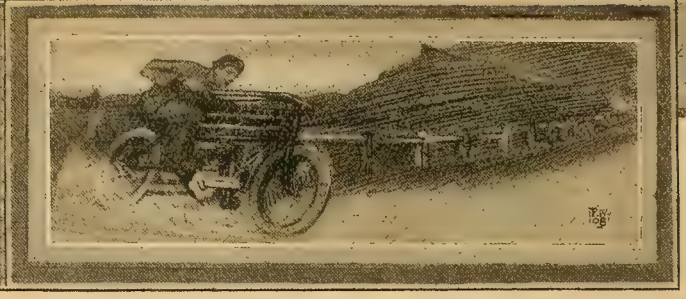
Dr. F. Hall.

cost me more than £15 a year. The rapidity of getting about is delightful, exhilarating, healthy, and gives one a longer time at home. A tricycle with a two-speed gear is better for a doctor than a bicycle, as he is busiest when the roads are at their worst, and I feel much happier since taking to a three-wheeler.

Surgeon (East Anglia).

A motor cycle saves time on a round, ensuring either more leisure or increase of practice, supplements a car, trap, or bicycle. A lightweight for mixed town and country work, a powerful twin with two-speed gear for hilly districts, and sidecar to convey colleague, nurse, and surgical impedimenta. Magneto ignition, spring forks, Rich's tubes, Palmer cords, and rubber belts. Easy replacement of spares of well-known make essential. Cost little more than push bicycle, but needs very little skilled attention with a little intelligent use and care. A Vindec twin with Castor wheel sidecar and a Moto-Rêve I find to be excellent steeds.

CURRENT CHAT.



Special Features

THE END-TO-END RECORD BROKEN.

A CUBICAL CAPACITY TABLE.

Growth of the A.A.

374 new members have joined the Automobile Association within the last three weeks.

Hill-climbing in Austria.

N.S.U. and Phänomen motor cycles gained first places in a hill-climb at the beginning of this month at Riederburg, some sixteen miles from Vienna. The course measured two and a half miles, with a rise of 638 feet. In the lightweight class Scheibert motor cycles occupied first, second, and third places.

Motor Cycle Racing at Lyons.

The Motor Cycle Club de Lyon is organising a race meeting for next Sunday, to be held on the road between Chères and Anse. The machines will be divided into four classes, and will be timed over a flying kilometre. A special prize of 100 francs (£4) will be awarded to the motor cyclist making the best time during the day.

An Attempt on the Hour Record.

Grapperon, the well-known Alcyon rider who has been figuring very prominently of late both on road and path, is now preparing for an attack on Guippone's world's hour record. Olieslagers is of opinion that the record will be difficult to wipe out, but Grapperon thinks otherwise, and as a result the pair made a bet, the former laying odds against the latter setting up new figures before the first of September.

The Length of Footrests.

Long low footrests are dangerous when taking corners at fast speed, as was proved at the A.C.U. Hill-climb at Sutton Bank. One or two competitors had long footrests fitted to their machines, and during the afternoon the left footrest of one machine caught in the ground while the machine was travelling at twenty miles an hour round the bend, and acting as a pivot spun the machine completely round.

French Grey Finish

Apropos of the leaderette in our issue of April 15th, from careful observations we have made recently, we are decidedly of opinion that French grey is the best colour for motor cycles, as it does not show the dust or dirt anything like black enamel or aluminium. A motor bicycle nicely finished in French grey looks just as smart as any other colour, and we are not the only persons of this opinion, for we have seen several new motor cycles finished in French grey recently.

More Military Motor Cyclists.

A volunteer motor cycling corps is to be formed at Vienna in connection with the Volunteer Motor Corps, both coming under the command of the Emperor's nominee. The two corps will support the army in the field and do orderly work. Members receive uniforms and compensation for consumption of fuel on the basis laid down for the elder body.

Motor Cycling in O.R.C.

Mr. G. Turner, M.M.S.S.R.E., Harrismith, O.R.C., informs us that a motor bicycle without a two-speed gear is useless in that part of the country. Harrismith being situated about 5,000 feet above sea level, our readers will readily understand that a considerable amount of climbing is necessary, and a photograph which Mr. Turner sends us shows high mountain ranges and very difficult country.

A Handsome Motor Cycling Prize.

The trophy illustrated is one which has been offered by the Palmer Tyre, Ltd., in connection with the York County Motor Cycle Club's twenty-four hours' reliability run to Edinburgh and

back on July 18th next. The cup will be presented to the rider who makes the best performance on Palmer tyres in the above event. The trophy is at present on view at the Triumph Co.'s depot, 4, King Edward Street, Leeds. Gold medals are offered by the club to all who finish within twenty-four hours.

End-to-End Record Broken.

Several hours were knocked off the Land's End to John-o'-Groat's motor cycle record last week by Arthur W. Bentley riding a 1908 Triumph. He started from John-o'-Groat's and finished at Land's End in a very fresh condition considering the strain he endured, the greatest discomfort being the irregular food.

Walking beside a Motor Bicycle.

It was once the prevalent opinion among motor cyclists that magnetos caused difficult starting, but in nineteen cases out of twenty sluggish starting is wholly and solely due to the carburetter. We recently tested a well-known 3½ h.p. motor bicycle that was in such perfect tune that it was possible to walk beside it with the engine firing regularly, and this with a gear of 4 to 1. Would that every new motor cycle turned out was as docile. Motor cycling loses some of its charms if the machine is a difficult starter, and there is no question of doubt that if all motor bicycles were tuned up to start and run at three miles an hour there would be thousands of new converts.

Police Traps.

A correspondent informs us that the police are very active in West Sussex. There is a trap on the Chichester Road between Midhurst and Cocking. It extends from about two miles from Midhurst to a point about a quarter of a mile from the village of Cocking. Motorists are generally accused of driving at twenty-seven miles an hour.

At Hambleton, about four miles from Selby, on the York and Selby Road, a quarter-mile trap has been started.

Between Garstang and Preston, a distance of ten miles, motorists are timed and checked by telephone, also on both sides of Lancaster. There are three traps within eight miles of each other.

At Stannington, on the Newcastle-Edinburgh Road, four miles south of Morpeth, and at Seaton Burn, two miles north of Gosforth. The Morpeth trap is from the start of the tar macadam road to the police station, going north. The Seaton Burn trap is from about 100 yards from the railway bridge over the road to the public-house on the extreme north end of the village. Over twenty motor cyclists were stopped during a recent week-end. Between Galgate and Lancaster, half a mile north of Galgate. The trappers are behind the hedge on the right hand side going north to Lancaster.

SHAMROCK-EXCELSIOR RUBBER STUDDED TYRES

AND

SHAMROCK-GLORIA BELTS

prove to be the most successful Tyres and Belts, and are **by far best represented** amongst the competitors on their arrival at Edinburgh.

Write for Lists.

LONDON-EDINBURGH

MISS MURIEL HIND says:

"I used one of your belts on my 5 h.p. Rex in the London-Edinburgh Run last week; although the belt was practically new I had not even to take it up, and it gave no trouble during the ride. It is a splendid belt in every way."

MR. A. STANLEY PHILLIPS says:

"I had a Shamrock-Gloria Belt fitted to my 5 h.p. Vindec at the beginning of this season, and it has done over 1,600 miles, and does not show the slightest sign of wear. If I am fortunate enough to outlive the belt I will let you know its mileage."

Sole Manufacturers: **THE HANOVER RUBBER CO., 29-31, Old St., London, E.C.**

100%

MOTO-REVE

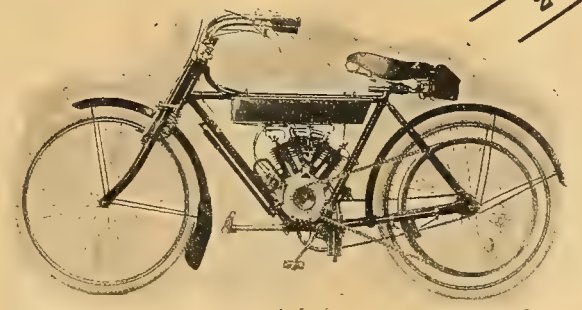
THE LIGHTWEIGHT MOTOR CYCLE.

EDINBURGH

24 HOURS.

ONE ONLY was entered by us for the LONDON-EDINBURGH run and that one came successfully through this searching test and qualified for the

GOLD MEDAL.



Echoes of SUTTON BANK.

The Motor Cycle says—

"R. G. Bell, the rider of the Moto-Reve, did not dismount at the corner — he unfortunately fell. Bell was travelling at a good speed at the corner, but when negotiating it the back wheel of the machine skidded from under him. Considering that the machine had the smallest engine of all those competing, the fact that it got as far as the corner is a point distinctly in its favour."

400 MILES

May we send you particulars? Drop a postcard for List DD.

LONDON

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A Competitor for the End-to-end.

We recently stated that Mr. J. H. Hall, of Sheffield, would compete in the End-to-end run next month. This is incorrect; it is the new president of the Sheffield and Hallamshire M.C.C., Mr. F. Dover, who has entered for the run.

M.C.C. London-Edinburgh Run.

The committee of the Motor Cycling Club met on Monday last to go through the timekeeper's (Mr. F. T. Bidlake's) figures and decide the winners of the Schulte Cup and the special cup for motor bicyclists. Mr. C. W. Brown, writing in the *Nottingham Evening Post*, gave A. G. Reynolds as the probable winner of the Schulte Cup.

Open Hill-climb at Barnsley.

On Saturday next, on Stainborough Lowe, Barnsley, an open hill-climbing competition will be held for the Littlewood twenty-five guineas challenge trophy. From a contour of the hill we note the gradient at the start is 1 in 66 for 66 yards, then 1 in 22 for 66 yards, 1 in 10 for 166 yards, 1 in 7 for 333 yards, 1 in 6 for 100 yards, 1 in 22 for 66 yards, 1 in 9 for 233 yards, finishing with 66 yards of 1 in 20. The length of the hill is 1,100 yards, with a total rise of 320 feet, and the surface is in good condition. By kind permission of Capt. Wentworth, the competitors will return through the park back to the starting point. A telephone is being erected on the hill.

A New Road to Brooklands.

The entrance to the Brooklands racing course for both cars and motor cycles will, in future, be from the Byfleet Road, about a quarter of a mile nearer to Weybridge than the present entrance to the members' car enclosure. This new entrance will be in use on other days than race days. The motor course will be closed on Sundays until further notice. Foot passengers approaching the track on race days and non-race days will continue to use the present approaches.

"The Motor Cycle" Cubical Capacity Table.

The cubical capacity table published this week, pages 474 and 475, is the most complete table that has ever been published in connection with single-cylinder engines. It gives the bore in millimetres from 50 up to 90, progressing one millimetre at a time. The stroke is also given from 50 to 100 mm. progressing one millimetre at a time. It is, therefore, possible to find the cubical capacity of any engine on the market without any calculating, provided the bore and stroke are known. All the reader has to do is to find the bore, say 75 mm., which will be found in the vertical column in large figures headed bore in millimetres, trace along this line until the column indicating the required stroke is reached. The figure in the square at the intersection is the cubical capacity in centimetres. In the case of multi-cylindered engines, the figure in the square has merely to be multiplied by the number of cylinders. This table, printed on a stiff card, eyeletted and corded, suitable for hanging up in works offices, clubrooms, garages, motor cycle depots, etc., can be obtained from *The Motor Cycle* Offices, 20, Tudor Street, E.C., and Coventry, for 6d. post free.

The M.C.C. Team Competition, June 27th.

In addition to the eight clubs already mentioned, we understand from Mr. J. Van Hooydonk, the trials hon. sec. for the team competition, that two other clubs are almost certain to enter before Saturday next (the closing date), viz., the Manchester M.C. and the Oxford Bocardo M.C.C.

The Motor Cycle silver challenge cup has now been contested for on three occasions, and it is instructive to recall the number of miles covered by members of the winning teams without a stop: 1904, Coventry M.C.C., 485 miles; 1906, Motor Cycling Club, 457½ miles; 1907, Coventry M.C.C., 534 miles. The course measures 100 miles, and six riders represent each club team. Entries definitely close on Saturday next, the 20th inst., the trial being fixed to take place on the following Saturday, starting from Daventry, Northants.

FUTURE EVENTS.

June 20—Entries close for M.C.C. Team Competition at Daventry.
" 20—Barnsley Victoria C.C. (Motor Section) Open Hill-climb for Motor Cycles.
" 24—London United Tramways Five Miles Tourist Motor Cycle Handicap at the Stadium.
" 27—M.C.C. INTER-TEAM TRIALS for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective Competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., Birmingham M.C.C., Lincolnshire M.C.C., Liverpool M.C., North West London M.C.C.; Sheffield and Hallamshire M.C.C.; Manchester M.C.; and Bocardo M.C.C. (Oxford).
" 27—Motor Cycle Union of Ireland Inter-centre Contest for the Triumph Cup.
" 27—Scottish Twelve Hours' Open Reliability Trial.
" ——A.C.U. 24 Hours' Ride.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 6-7—A.C.F. Grand Prix Races for Cars and Voiturettes.
" 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
" 14-15—M.C.U.I. (Ulster Centre) Open 400 Miles Reliability Contest.
" 25—Motor Cycling Club Petrol Consumption Tests.
Aug. 8—Essex M.C. Open Race Meeting at the Stadium.

Successful Machines in the London-Edinburgh Run.

The following will give an idea of the great reliability of the various popular makes of motor cycles in the London-Edinburgh twenty-four hours' ride. Of the twenty-six Triumph riders who started, twenty-one reached Edinburgh to schedule time, fifteen Vindec Special riders started and twelve finished, nine Rex started and eight finished, four Minervas started and three finished, four Bats started and three finished, four N.S.U. started and two finished, three Matchless started and all three finished, while two Moto-Rêves started and both finished. Among the passenger machines three out of four Lagondas which started reached Edinburgh within the allotted time.

Two-speed Gears in the End-to-end.

If any entrant for the A.C.U. Land's End to John-o'-Groat's Trial is desirous of fitting a two-speed gear, we know of a firm which is anxious to supply an engine shaft gear for use in the above event. Letters addressed "Two-speed Gear, c/o the Editor," will be forwarded to the right quarter.

Chichester Motor Cycle Race.

The winner of the three miles open handicap held in Priory Park, Chichester, on Whit-Monday, was P. R. Dowson (85 by 60 mm. J.A.P.), time 5m. 20s., prize silver goblet; 2, J. R. Belcher (70 by 76 mm. J.A.P.), prize dinner gong. There were six competitors. The track is grass and five laps to the mile.

Imports and Exports of Motor Cycles.

Imports of motor cycles and parts during last month were valued at £6,500, as against £9,398 in May, 1907. The five months' figures were £29,783 this year, £41,606 in 1907, and £41,642 in 1906. The exports of British machines during May were valued at £3,859, as compared with £5,327 in May, 1907. For the five months ended 31st May £21,646 worth of motor cycles and parts were exported this year, £23,624 worth in 1907, and £21,267 in 1906. Re-exports of foreign motor cycles reached the value of £3,913 during the first five months of the present year.

No more Hill-climbs at Sharpenhoe.

No more hill-climbing contests will take place at Sharpenhoe, for the fiat has gone forth that henceforth permission for competitions will be refused. All motor cyclists in the district, as well as hotel proprietors, refreshment caterers, and the majority of the villagers, regret the decision of the authorities.

Another Rubber-studded Tyre.

A new British made rubber-studded tyre for motor cycles will shortly be placed on the market.

Schulte Cup Competitors.

Mr. J. O. M. Dixon (3½ h.p. Vindec), a competitor in the M.C.C. London-Edinburgh and Schulte Cup competitions, informs us that owing to having lost his way near Haddington, and having experienced a choked carburetter, he arrived at Barnet 1h. 50m. late, not reaching that town till 12.40 a.m. Beyond the above-mentioned experiences he completed the double journey satisfactorily.

Entries for the End-to-end Run.

At the end of last week the entry list for the A.C.U. Land's End to John-o'-Groat's Run, July 13th to 18th, totalled twenty-six. In addition to those given last week the following have been received: R. W. Duke (3½ h.p. Triumph), W. W. Douglas (2¾ h.p. Douglas), P. Phillips (2¾ h.p. Douglas), B. H. Davies (6 h.p. Advance with sidecar), E. Gwynne (5 h.p. Vindec Special), W. H. Outwin, J. Marshall, J. Slaughter, P. Cockroft, A. Manning Lomax, and H. C. Hanrott, all on 3½ h.p. Triumphs.

END-TO-END RECORD BEATEN.

DURING the last four years the honour of holding the Land's End to John-o'-Groat's record has remained in the hands of Mr. Harold Williamson, who, riding a 3¼ h.p. Rex, on July 30th, 1904, bettered Mr. G. P. Mills's splendid performance on a 3 h.p. two-speed Raleigh by 2h. 10m. From that time till last Wednesday no further End-to-end "record" rides were made, though occasionally

Arthur W. Bentley, who broke the Land's End to John-o'-Groat's record last week, riding a 1908 Triumph. His time was 41 hrs. 28 min.

rumours of attempts and failures reached us. Now the victor's laurels rest on the brow of Mr. Arthur W. Bentley, an enthusiastic amateur rider, who, mounted on a standard sealed 3½ h.p. Triumph, lowered Williamson's record by 7h. 8m., having accomplished the ride in 41h. 28m., and also beating the car record which stands at 42h. 5m.

The Start.

Starting on Tuesday, the 9th inst., at 2 a.m. from John-o'-Groat's, in the light of the early morning, the gallant rider was dispatched from that picturesque corner of Caithness, where it never gets dark at this time of the year, by Mr. D. K. Hall, whose name as a timekeeper is not unknown to motor cyclists, and excellent time was made along the good roads of the extreme North. News of the ride had got abroad, and even in Wick many people were about to give him a cheer as he rode southward. Berriedale, however, nearly proved his undoing, as Bentley never realised the severity of that sharp corner of this hill of hills, and only presence of mind and skilful riding saved him from rushing over the precipice into the sea. At Beauly an excellent early breakfast was provided, and here Mr. Bentley's brother and Mr. A. M. Lomax both met him and followed him for some distance. Both Mr. H. M. Bentley and Mr. Lomax were competitors in the M.C.C. London-Edinburgh run, and the latter, who had trouble with his magneto armature, got the defective part replaced, and though he failed in the aforesaid competition, he hurried to the North and rendered the aspirant to the record valuable assistance by giving him three butt-ended tubes. As he journeyed southward Bentley rapidly gained on his schedule, despite the fact that he experienced three punctures caused by long nails. The road over the Grampians was greasy at first, and then rough, but fair on the whole, and there was no wind to speak of at this stage of the journey. Refreshment was taken at Perth, and again at Lockerbie, where a crowd gathered. This point was reached about 4 p.m. Messrs. Tatham and Draper, both competitors in the London-Edinburgh run, were to have met Bentley on Shap, but somehow or other they missed him, and he continued on his way alone till he reached Whitchurch at midnight, where his troubles began.

Hotel Proprietors and Belated Travellers.

Here arrangements were to have been made for dinner (the only proper meal he was to have had throughout the journey), but the assistant mistook twelve midnight for twelve noon, and after fruitless attempts to rouse the proprietors of several hotels the journey was continued alone in the dark, and from here be began to lose time. Three hours ahead of his schedule at Whitchurch, he rapidly fell back. It was pitch dark, and a slight rain was falling, as, supperless and fatigued, he tried to find his way along an unknown road against a strong headwind with his lamp burning badly. However, he struggled on till day broke at Bridgnorth. Gloucester was reached at last, and here L. W. Bellenger (a former exponent of the Quadrant) met him, and to him Bentley owes much of the success of his ride. At Gloucester the feeding arrangements again broke down, and nothing but some coffee could be obtained. From here to Launceston Bentley could give but a confused account of what happened. Faint from want of food and stiff after a fall during the night, he describes this section as a nightmare. After Exeter, Bellenger and a companion who were

A. W. Bentley nearing the end of his long ride.

following experienced some trouble, and had to stop, when, to their surprise, they saw Bentley tearing back in the reverse direction. One of them followed, and sent him again along the right road, when after

End-to-end Record Beaten.—

travelling a few miles, their trouble being set right, they found his machine jacked up, and he asleep by the roadside.

The Effects of a Good Meal.

Left for an hour to rest, he was revived, and continued to Launceston, where, after a good meal, he quite recovered, and made a splendid run to Land's End, which he reached about 6.28 p.m. on Wednesday. Unfortunately, near Truro he followed a car, which led him astray into the town, causing him with this detour, and the fact that while feeling unwell he travelled several miles back along the road by which he had come, to cover about 900 miles, instead of 888. The timekeeper at the start was Mr. D. K. Hall, and at the finish Mr. Samson Turner, of Penzance, who was checked by Mr. Hall, who travelled from John-o'-Groat's for that purpose. The total time was 41h. 28m. We have examined the actual machine, and have seen that the seals are intact. The only point in which the machine differs from the standard is that it possesses a capacious tank. It is in splendid condition throughout, while the tyres (the latest type of rubber studded Clinchers) show little signs of wear, and have stood magnificently. The only mechanical trouble experienced beyond the three nail punctures to which we have referred was a broken exhaust valve. The whole performance reflects the greatest possible credit on Mr. Bentley, who drove with consideration in towns and populous places and yet maintain a decent average, for piloting the machine so skilfully, and on the manufacturers for the success of their production. Had Mr. Bentley been properly looked after all along the route, he would undoubtedly have made much better time, but, despite the twenty-five hours without proper nourishment, he looks well. He enjoyed a good dinner on his arrival at Land's End, and a good sleep afterwards, though he was up betimes the next morning, took a walk before breakfast, rode to Penzance, and caught the midday train to London.

Group of competitors in the North-west London Motor Cycle Club's speed-judging competition outside the Duke of York, near Potter's Bar.

Motor Cycle Racing at the Stadium.

INCLUDED in the programme of the Essex Beagles C. and A.C. at the Stadium at Shepherd's Bush on Saturday last was a ten miles motor cycle handicap, limited to machines fitted with engines not exceeding 76 by 76 mm., or the equivalent volume swept out. For this event nine entries had been received, necessitating two heats and a final, the preliminary heats being of five miles. In the first heat the starters were: C. E. Bennett (2¾ h.p. Mansfield), 76 by 75 mm., scratch; H. Martin (2¾ h.p. Matchless), 85 by 60 mm., 10s.; T. A. Carter (2¾ h.p. Matchless), 76 by 76 mm., 12s.; and G. H. Gerhard (2¾ h.p. Brooklands), 76 by 73 mm., 15s. Gerhard maintained his lead for about one mile, when he was passed by Martin, who, however, at the end of three miles gave place to Bennett, and a splendid race ensued between these two, Bennett ultimately winning by 150 yards. Time, 6m. 9⅖s. Bennett's nett time, 5m. 54⅖s. The second heat, for which five names were on the programme, only produced two starters: H. V. Colver (2¾ h.p. Matchless), 76 by 76 mm., 5s.; and A. P. Tyler (2 h.p. Chater-Lea), 70 by 70 mm., 20s. This heat furnished another most interesting race, Tyler maintaining his lead until just entering the last lap, when Colver managed to overtake him, eventually winning by about 80 yards. Time, 6m. 54s. Actual time, 6m. 39s. The final, which was run off over ten miles, resulted as follows:

1. H. Martin, 20s.
2. C. E. Bennett, scratch.
3. H. V. Colver, 10s.

A. P. Tyler, 40s., retired.

This provided a most exciting race between the above riders, Tyler soon being overhauled by Martin, who appeared to be getting away from the scratch man, Bennett, who, however, at about half-distance nearly caught him, but soon after perceptibly slowed, and lost considerable ground, which he was unable to make up, Martin ultimately winning by half a lap, Colver a lap to the bad. Time, 12m. 18⅘s., Bennett's actual time being 11m. 58⅕s.

The new regulations prevented photographers taking a camera inside the grounds on Saturday last. We are, therefore, unable to give any pictures of the racing.

A.C.U. NOTES.

ELECTIONS.—At a recent committee meeting of the A.C.U. sixteen new members were elected.

AFFILIATIONS.—The most recent affiliations comprise the Halifax and District, the Purley and District, and the Sutton Coldfield Motor Cycle Clubs.

PERMITS.—Permits have been granted to the Barnsley Victoria C.C. to hold an open motor cycle hill-climb on the 20th inst., for the *Sport and Play* race meeting at Birmingham, to the New Chesterton Club to hold motor cycle races at Cambridge on July 4th and July 9th, and to the Guildford C.C. to hold motor cycle races at Guildford on August 3rd.

LONDON TO PLYMOUTH AND BACK.—It has been decided to hold this competition, which will be open to the members of the A.C.U. and to those clubs affiliated to it. The details will be arranged by the Competitions Committee.

WOODFORD MEET.—The Auto Cycle Union has decided to award a prize to the rider of the best decorated motor bicycle. The Union has also decided to extend its patronage to the Travel Exhibition, which will be held at Olympia during June and July next year.

COUNCIL MEETING.—The next council meeting will be held at Warwick in September. One of the items on the agenda will be the 5s. scheme for unattached riders.

CLUB NEWS.

Burton-on-Trent and District M.C.C.

The above club held a successful run on Whit-Monday to Market Drayton, where an enjoyable time was spent in the grounds of a member.

Nelson and District M.C.C.

We are informed that a new motor cycle club has lately been formed under the above name. Prospective members should apply to Mr. J. H. Eaves, 20, Water Street, Nelson.

Nottingham and District M.C.C.

About twenty turned out for the inaugural run to Newark last Saturday. The first meeting of the committee was held on the 3rd inst. at the Lion Hotel, Nottingham. Mr. J. Elliot Littlewood was elected chairman. The annual subscription was fixed at 2s. 6d., with entrance fee 5s. after this the first year.

Applications for membership should be addressed to Mr. C. A. A. Spring, 19, Stratford Road, W. Bridgford, Nottingham.

Shamrock M.C.C. (Belfast).

A petrol consumption trial was held on Saturday, the 6th inst., over a course of fifty-one miles, the start and finishing points being at the Central Hotel.

The placings were as follows: 1, James Miller (2¾ h.p. Peugeot), weight propelled 336 lbs., amount consumed 3 pints 7 ounces; 2, W. Bailie, weight propelled 332 lbs., amount consumed 4 pints 7 ounces; 3, David Morton, weight propelled 343 lbs., amount consumed 5 pints 10 ounces.

Walthamstow M.C.

Motor cyclists are reminded of the Woodford meet of motorists and cyclists on Saturday, June 20th, and are specially invited to take part in the procession which will start from the grounds of Park House, Blake Hall Road, Wanstead, at 4.25 p.m. sharp on that day. Judging of costumes at 4 p.m. Prizes will be given for the best decorated motor cycle (with or without passenger attachment), and any driver or rider in the procession will be eligible to compete. Further information will be sent if application be made to the chief motor marshal, Mr. W. H. Applebee, Church Hill, Walthamstow. Tea will be served at the Bull and Crown, Chingford.

Ayr and District M.C.C.

A very successful hill-climbing competition was held on Rotterhill Brae last Wednesday evening, the 10th inst., and the results based on formula were:

	Figure of Merit.
M. Brown (1¾ h.p. F.N.)	34.1
W. McFarlane (3 h.p. N.S.U.)	37.3
J. Grier (2 h.p. De Dion)	40.4
J. McClure (3½ h.p. Triumph)	42.7
W. Allan (3 h.p. Triumph)	43.8
J. Robertson (3½ h.p. Minerva)	47.0
J. R. Johnstone (3 h.p. Fafnir)	49.1
J. Allan (2 h.p. Minerva)	49.3
D. Milligan (4 h.p. Werner)	50.5
A. Morton (3 h.p. Antoine)	62.0
G. Cocker (5 h.p. Rex)	63.2
H. Andrew (3½ h.p. Minerva)	63.5

Competitors were allowed three ascents of the hill, the best time to count. The fastest ascent was made by G. Cocker, in 30⅕s., for which a special prize was given.

Falkirk and District M.C.C.

On Whit-Saturday a hill-climb was held on Auchengean Hill. There were eighteen entries. Results: Class I.—

	Position on formula.	Time.
A. B. Blane (1¾ h.p. F.N.)	1 ...	40⅖s.
A. Muirhead (2¾ h.p. F.N.)	2 ...	35⅖s.
R. F. Salvesen (3½ h.p. Triumph) ...	3 ...	24⅖s.
A. G. Bostock (3½ h.p. Triumph) ...	4 ...	25⅖s.
G. Salvesen (3½ h.p. Triumph) ...	5 ...	25s.
F. Salvesen (3½ h.p. Triumph) ...	6 ...	25s.
C. Malley (1¾ h.p. F.N.)	7 ...	43⅕s.
E. Luthardt (3½ h.p. N.S.U.)	8 ...	30s.
Dr. Shanks (3½ h.p. Quadrant) ...	9 ...	35⅖s.
D. Cousins (3½ h.p. Excelsior) ...	10 ...	40s.

Class II. (multi-cylinders).—D. F. Bostock (6 h.p. N.S.U.), position on formula 1, time 22s.; J. C. Baird (5 h.p. Rex), position on formula 2, time 25⅖s.

Leeds M.C.C.

There were twenty-four starters in the Edinburgh and back run on Saturday, and the following riders duly finished within twenty-four hours.

F. W. Greenwood (3½ h.p. Rex), G. E. Tennant (5 h.p. Vindec), J. Percival, A. H. Hyde, H. D. Shaw, and Eric Myers (all on 3½ h.p. Triumphs). The result will be ready for next issue.

Sheffield and Hallamshire M.C.C.

The recent competition at Castleton had to be postponed until July 4th owing to a severe thunderstorm on the original date.

Next Saturday, the 20th inst., the annual reliability trial will be run from Sheffield to Bridlington and back. Three prizes are offered, and all competitors who complete the journey in twelve hours will receive a bronze medal.

Lincolnshire M.C.C.

Over two courses, each 125 miles, and equally difficult, the reliability trial of the Lincolnshire Club was run on Whit-Monday. The competitors were started simultaneously from Grimsby, Louth, Scunthorpe, Lincoln, Grantham, Stamford, Sleaford, and Lincoln at 8.30, and took the circular courses left hand inside. The rider adhering closest to his own schedule of time throughout wins the handsome silver vase held by Mr. E. R. Cole, Roxholme. Non-stop runs were claimed by the following:

North Route.—J. Mears, Scunthorpe (Motosacoche); A. Heseltine, Scunthorpe (twin Rex); J. R. Guessford, Scunthorpe (3 h.p. Glandford-Fafnir); S. G. Clarke, Louth (Rex); and W. H. Quine, Lincoln (3 h.p. Peugeot).

South Route.—C. Draper, Bracebridge (2¾ h.p. Minerva); J. Kirby, Lincoln (3 h.p. Lincoln Elk); A. Harrison, Lincoln (3 h.p. Lincoln Elk); C. C. Williams, Lincoln (3½ h.p. N.S.U.); R. N. Morley, Leadenham (3½ h.p. Brown); E. R. Cole, Roxholme (3½ h.p. Brown); and J. A. Mettham, Grantham (3½ h.p. Minerva).

Syston Hill-climb.

Coming in holiday week, the entry for the Lincolnshire M.C.C.'s hill-climb on Thursday in Syston Park, kindly lent by Sir John Thorold, Bart., was not quite so large as usual with this club. The arrangements were in the hands of the Grantham Centre. The best times are:

H. Gaunt (Motosacoche) making a good ascent.

Class 1 (under 3 h.p.)—H. Gaunt (1¼ h.p. Motosacoche), 1m. 27⅘s.

Class 2 (3 h.p. and over).—Alan L. Shaw (3½ h.p. Minerva), 58⅕s.; G. Williamson (3½ h.p. Minerva), 59⅗s.; A. E. Brunning (3 h.p. Dene-Fafnir), 1m. 22s.; G. J. Wilkinson (3½ h.p. Elk), 1m. 23⅘s.; and H. Gaunt (1¼ h.p. Motosacoche), 1m. 24⅗s.

Class 3 (twin-cylinder machines).—W. J. Clarke (5 h.p. Rex), 44⅕s.; R. C. Holland (6 h.p. Jap), 54⅗s.; and P. Pell (5½ h.p. Rex), 1m. 2⅗s.

North-west London M.C.C.

This club held a speed-judging contest on Saturday last. The course was from the Duke of York (near Potter's Bar) to the top of Digswell Hill (between Hatfield and Welwyn) and back, the total distance being twenty miles.

Place.	Rider and machine.	Speed.	Error.
1.	G. Rowden (3½ h.p. Bat)	17 m.p.h.	11s. slow
2.	F. Thomas (5 h.p. G.O.K.) ...	16 ,,	1m. 21s. ,,
3.	F. Fox (3½ h.p. Quadrant) ...	17 ,,	1m. 30s. ,,
†.	A. S. Phillips (5 h.p. Vindec) ...	16 ,,	2m. 29s. ,,
†.	C. G. Myer (9 h.p. Bat)	15 ,,	2m. 29s. fast
5.	W. C. Davenport (3½ h.p. Phœnix)	15 ,,	2m. 46s. ,,
6.	H. V. Davidson (3 h.p. Werner)	18 ,,	3m. 14s. slow
7.	G. H. Hollis (3½ h.p. Triumph)...	16 ,,	3m. 34s. fast
8.	E. W. Brighten (2½ h.p. Ariel) ...	19 ,,	4m. 19s. ,,
9.	C. Preen (4½ h.p. Minerva) ...	18 ,,	5m. 38s. ,,

† Tied for fourth place.

THE ROC

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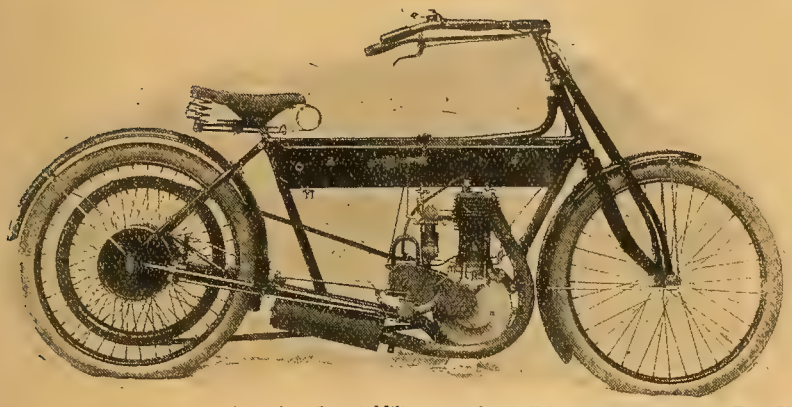

Changing old ideas of motor cycling. Demonstrated its capacity at Sutton Bank. The standard touring ROC machines entered were ordinary roadster standard models, and in no sense specially prepared.

4 h.p. New Royal Military model, ball bearing engine, with Roc Clutch, hand starting, and Roc speed gear, **48 guineas.**

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NOTE.—The ROC with live axle is the key to the future of motor cycles. NOTE also the Duplex tanks, the Duplex frame, the comfortable low riding position, the efficient silencer—the car like design.

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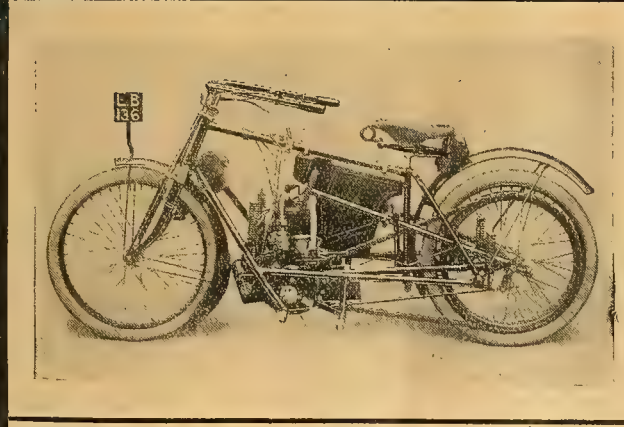
Aston Road and Dartmouth Street. BIRMINGHAM.

Illustrated booklet describes these machines.



THE ZENETTE WITH Gradua Gear.

What riders say about it:

Messrs. Zenith Motors, Ltd. 20th May, 1908.

Dear Sirs,—I have to express my complete satisfaction with the 'Zenette' with 'Gradua Gear.' I gave up a practically new machine of first-class make simply because I wanted more comfort on the long journeys I have to take. I went for a 70 mile run yesterday and returned feeling perfectly fresh, and not in the least stiff. The gear enabled me to soar up River Hill, and has quite proved its reliability and practicability. As tests, I tried last week stopping and restarting on the steepest parts of Brockley Hill and Netherhall Gardens, in both cases most successfully.

Believe me, Dear Sirs, etc.

25/5/08

Dear Sirs,

I think you would like to hear I am pleased with the Zenette I bought from you this last Easter. I have now ridden close upon 1,300 miles, and given it a thorough trial, and have nothing but praise to give you. I am a hard rider, riding nearly every day, and since 1902 have had many motor bicycles, but none of them come up to the Zenette. I think the control and steering is perfect, and in traffic I can go at a walking pace with your 'Gradua' Gear, and stand still with the engine running, and without getting off start again, not having to dismount and then run and jump on, as in the old days. Up hills it flies, but if wanted will either crawl up or go at a comfortable speed, and will start in the middle of a steep hill. I certainly would not be without your 'Gradua' Gear now I have once had a machine with it, and I say the same in regard to the spring frame; it is as comfortable as a car; and another thing I like is the way it will turn in any ordinary road without stopping the engine or dismounting. Yours truly, etc.

What the Press says about this unique mount:

The Daily Telegraph (Motor Editor) says: "The 'Zenette' double-spring frame is quite unique. It is designed to give absolute immunity from vibration to the rider, and it consists of two members pivoted horizontally about the centre, so as to be capable of angular movement in a vertical direction, like the limbs of a pair of scissors. The members are of a somewhat rectangular design, and are connected at each corner by tension and compression springs. The back wheel and the engine, etc., are carried on the one member, and the front wheel and the driver on the other; but any shock to the front wheels does not act directly on the rider, as it is intercepted by a central hinge between the two members, and is absorbed there by the action of it, which becomes raised or depressed as necessary. This action is entirely compensating, and the running is, therefore, most luxurious."

The People (Motor Editor) says: "My readers will probably remember that the Zenith Motor Co. have specialised for some years past in the matter of spring frames for motor cycles, and it was that particular point of the machine which I was most anxious to test. Let me say at once that the spring frame was *a great success*. In the old days I had a rigid frame machine, but had to give it up owing to the vibration transmitted to my poor body from the inequalities of the road surface, and my recent ride fully demonstrated to me that the one great objection to the smallest form of automobile had been *done away with entirely* by the four-coil springs—two in front and two behind—fitted to the 'Zenette.' As for the variable gear—known as the 'Gradua'—I have nothing but praise for it, too. I think the gear will prove *an unqualified success*."

TRIAL RUNS OF THIS MAGNIFICENT MACHINE MAY BE HAD (BY APPOINTMENT ONLY).

ZENITH MOTORS, LTD., 119, Stroud Green Road, LONDON, N. (Station: FINSBURY PARK)

THE BIRMINGHAM DAILY MAIL

OF JUNE 10th, 1908,

in an article on the modern motor bicycle, condemns the heavy, noisy, nerve-racking cycle monstrosity, and further says:

a
a com ..y below the figure
..., n many cases it might prove a doubtful bargain. But what is likely to command popular attention in the near future is a kind of detachable motor-cycle, for which numerous advantages are claimed. The whole of the motor mechanism can be easily removed, so that the machine can then be ridden as an ordinary bicycle. It is 1¼ h.-p., though the Automobile Association rate it at 2¼; it is also light, and yet can conveniently carry a weight of 13 or 14 stone. In
a few of these
sanguine of
cle, its

The motor cycle recommended is, of course,

THE MOTOSACOCHE.

Write for full particulars and illustrated catalogue to

H. & A. DUFAUX (England) Ltd., 65, Holborn Viaduct, London, E.C.

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are made of the same pure Para rubber as the MICHELIN Motor Covers and Tubes. That is why their Quality is unequalled.

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Club News.—

Brighton and District M.C.C.

We are informed by the hon. sec. of the above that it is the club's intention to admit associate members at a subscription of 4s. per annum.

Lincolnshire M.C.C.

The meet on the 4th inst. was at Southwell. Mr. J. A. Mettham, hon. secretary of the Grantham Centre, showed the members over the Cathedral, and a most interesting time was spent.

Cardiff M.C.

To-day (Wednesday) a speed-judging competition will be held from Ely on the main Cowbridge Road to the last milestone (near railway bridge) the Cardiff side of Bridgend, and return by same road to the milestone at top of hill outside Cowbridge.

Worcestershire M.C.C.

The first annual hill-climb is fixed for the 20th inst. There will be two classes—one for single-cylinder machines and one for twin-cylinder machines. Two prizes are offered in each class, and Mr. Harry Lucas has kindly offered a special prize for the rider making fastest time. The hill selected is one mile in length, but the *venue* will be kept secret. Results will be worked out on formulæ. The following day the run is to Cleeve, and on the 27th inst. to Stratford-on-Avon.

Coventry M.C.

The results of the Coventry to Holyhead run of the above club on May 30th were made known at the committee meeting last week. The awards were a medal for first and a prize each for second and third. Competitors had to adhere to a mean average speed of 19 m.p.h. over the three sections of the route—Coventry to Llangollen, Llangollen to Menai, and Menai to Holyhead; in addition there were several surprise checks. The three awards were all taken by car competitors, the first motor cyclist being A. B. Jepson (3½ h.p. Triumph) with 18¼ bad marks; second motor cyclist, John V. Pugh (3½ h.p. Lloyd), 19¼ bad marks. The difference between the winning car and the first motor bicycle was only 1¼ bad marks, so it will be seen how keenly the event was contested.

Basingstoke and District M.C.

A reliability run of fifty-eight miles to Staines and back drew eleven entries, but only seven started. Ten checkers were placed at various points along the route, a minimum and maximum time being allotted for each section. The results were :

		Marks.
1.	M. Carpenter (3¼ h.p. Rex)	37.03
2.	J. E. Pool (3¼ h.p. Rex)	30.63
3.	F. Baron (3½ h.p. Brown)	26.82
4.	R. Joice (2 h.p. Minerva)	22.94
5.	Dr. F. R. Holmes Meyrick (10-12 h.p. Argyll car)	7.12

Also competed : K. Jones (4½ h.p. Minerva) and R. K. Hubbard (3¼ h.p. Rex).

Naval Motor Club.

A hill-climbing competition took place on Hyden Hill, near East Meon, on Whit-Monday, for naval officers, with the following result :

	Figure of merit.	Time above scratch.
SINGLE-CYLINDERS.		
Lieut. Hearn (3½ h.p. Triumph) ...	91 ...	9s.
Lieut. Ballantyne (3½ h.p. Triumph) ...	87 ...	12s.
Lieut. Townshend (3½ h.p. Triumph) ...	83 ...	3s.
H. M. Boxer, R.N. (3½ h.p. Triumph) ...	79 ...	scratch
Sub-Lieut. Tufnell (3½ h.p. Quadrant) ...	76 ...	8s.
Lieut. Bostock (3½ h.p. Triumph)	69 ...	13s.
MULTI-CYLINDERS.		
Lieut. Tracy (4½ h.p. F.N.)	78 ...	11s.
Dr. Turner, R.N. (4½ h.p. F.N.)	70 ...	17s.
Lieut. Davis (5 h.p. Rex)	68 ...	scratch
Sub-Lieut. Hutchison (5 h.p. Vindec) ...	58 ...	20s.
Lieut. Mackinnon (5 h.p. Rex)	49 ...	35s.

Fastest single-cylinder, 1m. 29s.; fastest multi-cylinder, 1m. 17s.

Lieut. A. F. G. Tracy, R.N., the winner of the multi-cylinder class, is the hon. secretary of the club. Several intending competitors were unable to be off duty, and others arrived too late to weigh in. (See page 473.)

A good idea of the acute bend half way up Sutton Bank can be gained from this illustration.

The rider is Captain Sir R. K. Arbuthnot, Bart., R.N. (3½ h.p. Triumph), and he is seen about to tackle a gradient of 1 in 6·10.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The A.C.U. Hill-climb.

[3355.]—I note that in your account of the A.C.U. hill-climb my machine (Scott) is referred to as 3½ h.p., and wish to point out that the engine is 3 h.p. only, and was entered in Class 7 as such. As you will see by the cylinder dimensions (twenty cubic inches total displacement), the engine is actually the same size as those generally classed as 2¾ h.p.

It might be interesting to draw attention to the fact that the total weight of the engine is 37¾ lbs., which is probably about half the usual weight of engines of this power.

ALFRED A. SCOTT.

Repairing Broken Pistons.

[3356.]—I thoroughly agree with what Mr. W. Merritt says regarding Mr. B. H. Davies's experience with an exhaust valve head punching its way through the head of the piston. If it is of any assistance to the readers of your excellent paper to know how a piston with a broken top may be cheaply and thoroughly repaired, and, in fact, made as new, I should like to say here how I made a repair to an engine of 3½ h.p. which I possess. The exhaust valve head broke off when running at a high speed, and falling into the cylinder, as in Mr. Davies's case, it punched a slot through the piston, and falling into the crank case it lay at the bottom. I removed the piston and took it to a foundry, where a new piece was "burnt" on. This is a process which some firms specialise in. The metal by this process is united as if it had never been broken, the surrounding metal being brought to almost fusing point before the new is poured in. The piston was then put in the lathe and roughly "skimmed" up again. I think Mr. Merritt is right in saying that there is no feature in your excellent paper which is more enjoyable than an article by Mr. Davies.

HUGH L. MILLER.

Transmission on Sidecars.

[3357.]—What other motor cyclists do is of interest to me. Perhaps what I do may interest others.

I own a 3⅜ h.p. Rex—a capital mount—and a Montgomery sidecar. I never go over fifty miles an hour, nor do I climb anything steeper than 1 in 2. But in our little runs about Norfolk and Suffolk my passenger and I have a good time, and always "get there," though not always without some pedal assistance. She says, "a little pedal assistance." Solo I drive with a ⅞in. Continental (rubber) belt, gear about 4¾ to 1. This belt is the cleanest one I know; it wears well, and the drive is like velvet.

When using the sidecar I put on a ¾in. Whittle (leather and steel) belt. This drops the gear to about 5¼ to 1 without the trouble of altering the "Albion" adjustable pulley. The little vibration set up by this belt is not particularly noticeable with the combination. This belt seems to me to meet the case well; it is stronger than the rubber and not so harsh as a chain

I am still looking for a good belt fastener for rubber belts. I use Riches detachable tubes and have nothing but praise for them.

REUB. G. NORMAN.

Touring Machines and the Weight Question.

[3358.]—We read with interest the article entitled "Touring Machines—The Weight Question," signed "C. E. T.," and should like to make one or two comments upon the remarks of your contributor *re* lightweight machines. He admits that a good trial of one of the latest twin-cylinder lightweights leaves little to be desired in smooth running and hill-climbing powers, but states that road vibration is particularly noticeable. If your contributor bases his remarks upon a lightweight machine, built upon ordinary cycle design lines, then we are hardly surprised, but let him try a Moto-Rêve, which is built up on proper motor cycle lines, *i.e.*, (1) a good long wheelbase, 52in.; (2) genuine motor cycle tyres; (3) a low frame with comfortable riding position; (4) a comfortable saddle 30in. from the ground; (5) long handle-bars with comfortable depressed grips; and (6) adjustable footrests. "Aye, there's the rub," and we venture to predict a very much more comfortable ride! But with the machine fitted up as above, it is still in every sense of the word a lightweight machine (85 lbs.).

As regards ease of control, your contributor suggests, himself, the very probable reason of his own machine being easily managed in traffic. A Moto-Rêve would also be surprisingly manageable in traffic if it were fitted with a gear proportionately below the normal! It is hardly necessary to comment upon the jockey pulley, as everyone knows that our machines are now V belt direct driven.

We differ from your contributor in that we claim that there really exists a serviceable and comfortable lightweight touring machine.

THE MOTO-REVE CO.

Belt v. Chain and Two-speed Gears.

[3359.]—We have read with pleasure Dr. Patterson's recent letter on the subject of belt *v.* chain and two-speed gears.

The superiority of the belt transmission is conceded by nearly all motor bicycle makers. Contrary to your correspondent's supposition, they do not turn a deaf ear to the needs of professional users.

In respect to motor bicycle design as we find it to-day, the dictionary appellation of "bicycle" as applied to an autobicycle, seems to have lost much of its primitive meaning. There are still advocates for a lightweight motor bicycle with pedals, who are not yet alive to the appreciation of that comfort and convenience which the equipment of the modern touring machine provides.

There are now two categories of motor bicycles—(1) the lightweight, requiring pedals; and (2) the average weight minus pedals, and requiring power, stability of construction, and such more or less indispensable conveniences as a clutch with a variable gear. Dr. Patterson states that the Roc, for instance, does not allow of the use of pedals—"an absolute necessity in case of breakdown for a medical man." Might one not with equal relevance reply that the owner of a 40 h.p. car is not provided with shafts for horse traction in case of emergency or breakdown? If the analogy is exaggerated, yet Dr. Patterson and others must see that the physical exertion sufficient to propel a modern motor bicycle weighing 170 lbs. (the weight your correspondent mentions with pedals) over any distance in excess of a few yards seems to make the preservation of pedals unnecessary, and quite useless for any practical object.

In regard to two ignitions, the reliability of the magneto seems to make supplementary ignition also unnecessary; it means added complication and added cost, but, of course, there is no disadvantage.

Most motor bicycle users are clamouring for easy starting, the solution of which is provided by starting from a live back axle with engine geared up on to the back wheel. In this form a machine starts no more easily with accumulator than with magneto ignition.

A. W. WALL, LTD.

Air-cooled Cylinders.

[3360.]—*Re* letter 3343, I rode a 4 h.p. Jap engine with the cylinder, valves, etc., completely cased in a copper jacket, and with a fan pumping air past the engine. It ran very much better in this way than with the jacket off and a twin fan on each side. HAROLD M. WOOD.

Belt Fasteners.

[3361.]—Will you kindly allow me to add my grumble to that of "Ixion" in reference to the above? No matter how perfect a machine may be in other respects, such a trifling detail as a poor belt fastener makes all the difference in the world between pleasure and (to say the least) misery.

If all motor cyclists have had the same experience as I have had with poor and defective fasteners, they have my deepest sympathy. Why cannot manufacturers of these articles make a good substantial article, and one that can be recommended? and, in addition to "Ixion's" suggestions, I would also suggest that the underside of the fastener should have a hole the same size as the shank of the screw, and *well* threaded. Also that the screw should be the same thickness from end to end, and not to taper, as it does at present.

Look at the miserable microscopical hole on the underside and the paltry thread on the screw, and to think they are British made by British labour. If the ordinary motor cyclist has bought as many of these as I have, then the makers are simply coining money, and one cannot wonder at it.

Perhaps someone interested will take this matter up and place a good, reliable fastener on the market. It would meet with a grand success. O 693.

Sidecars.

[3362.]—Will you allow me to make a few remarks on the letter which you published in your last issue over the signature of B. Richardson Billings, M.R.C.S., L.R.C.P.?

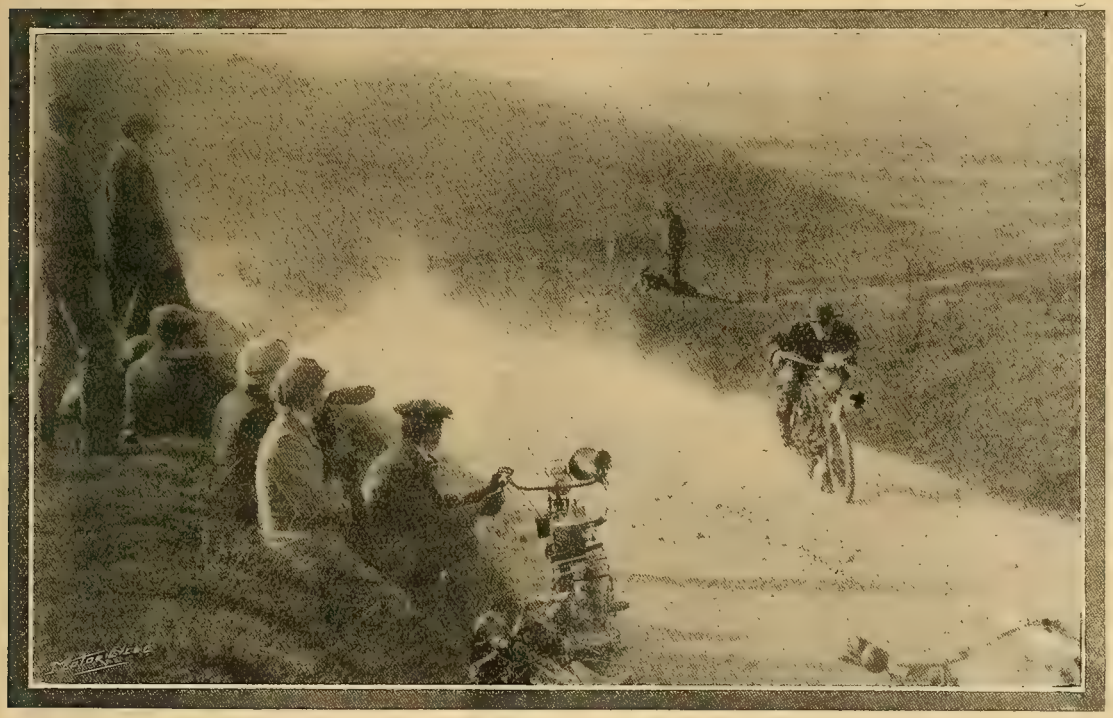
Mr. Billings infers that the letters on sidecars which you have been good enough to publish from the members of the trade, and other letters which you may publish in the future, are "chiefly disguised free advertisements from those monetarily interested." For my part I protest against this inference being put upon any communication I have addressed to you in these columns, and I can only describe the suggestions as a "little mean."

Mr. Billings is not a mechanic but an enthusiastic amateur, and most of us know to what lengths this condition will lead a man. Mr. Billings is a doctor, and if I were to write saying I had an infallible cure for headache, I can imagine Mr. Billings saying something about "quack"; and if I were to go further and say, "Take no notice of the doctor; it is to his monetary advantage to keep you in pain for a considerable time," Mr. Billings would probably be indignant.

Mr. Billings and I have differed on the question of the best mechanical construction of the sidecar. I take my stand on the fact that I served seven years apprenticeship in one of the most exact and best-equipped works in this country; furthermore, I have been engaged in mechanical construction for over twenty years. For the last six years I have devoted most of my time to the sidecar, and I think I can claim to have as much experience with sidecars as any man; also, I am open to prove my points at any time.

I think most of your readers will accept this as reasonable ground for my stating an opinion on a subject to which I have devoted so much attention, even though I am "monetarily interested," and will give me credit for some sincerity when I differ from the theories of an enthusiastic amateur who devotes *some* of his spare time to the subject.

W. MONTGOMERY.



Lieut. Tracy, R.N., winning the multi cylinder class in the Naval M.C. hill-climb, on his four-cylinder F.N. In addition to making fastest time, he was placed first on formula.

Practical Touring Machines.

[3363.]—It would be very interesting to Scottish motor cyclists if some of our English friends on their road south after the End-to-end, would make a detour and try to ascend Cairn-o'-Mount from Fettercairn to Banchory. On a recent club run of the Perth and District M.C.C. the only machine to ascend under its own power and carrying rider was a Phelon and Moore two-speeder, which took it without any difficulty. I may mention that the surface is a mass of loose stones, and the worst grade and surface are both at bends. ES 186.

A Problem to be Solved.

[3364.]—I read with very great pleasure every word in *The Motor Cycle*. I feel at a loss when for any reason a single number is miscarried. I wish we had a paper in America that was equal to yours in the motor cycle field.

As an engineer, I have been much interested in your articles on "Why does an air-cooled engine overheat?" I should like to give your readers a problem, and have the matter discussed in your paper. I have come across a peculiar phenomenon which I am not able to explain to my entire satisfaction.

All of your readers are no doubt aware of the fact that the F.N. Big Four, as we call the four-cylinder machine in this country, has a 6 to 1 gear, and it cannot be expected, therefore, that a machine of this gear will develop a very high speed. However, at times I have beaten high-powered and high geared twins on the level, and for distances of about one or two miles. This is how I have accomplished it.

After a Big Four has been run for two or three thousand miles, and if it has been carefully lubricated in that time, the pistons become like glass, and the internal friction of the engine and transmission is reduced to a minimum. It is remarkable how freely the engine moves. If now an engine be taken in this condition and run with full throttle and full air with advanced spark for some time, it becomes very hot as a matter of course. I have found on several occasions that if I oil very excessively and race the engine, suddenly something takes place, and I dart ahead at an abnormal speed. I never obtain anywhere near this speed when the engine is running in a normal condition. Let me describe an actual occurrence.

One day I was coming home after a run, and I passed a high-powered twin. We were going at about twenty-five miles an hour, and as soon as I passed the twin the rider of it opened up his throttle and I could hear him coming up rapidly behind me. He passed me, and just as he did so I opened up my own throttle and set the air and spark to get maximum speed. We came to a slight down grade, and both of us kept full throttle down this grade. Now that was exactly what I was wishing for, as I find that this abnormal speed is easily obtained if I race the machine down a slight grade. The twin drew ahead of me, there being a difference between the speed of the machines of about five or seven miles per hour. Suddenly the note of my machine increased, that is the musical note emitted by the rapidly exploding engine, and I found that my engine was in the abnormal state above mentioned. The way I went after that twin surprised him exceedingly, and I passed him at fully as fast a speed as he had passed me a moment before. I may say that I have only obtained this abnormal condition about six or eight times since I have ridden the F.N., that is during the last two years.

At first I thought that I had a case of pre-ignition, and that the inside of my cylinders being coated with carbon had become more or less incandescent, that is, that projecting pieces of carbon had become incandescent, and that the explosion of the gas took place almost instantaneously. I found, however, that pre-ignition was not the cause of this abnormal state, since when I cut off the spark on one of these occasions the machine stopped firing instantly. I have given the matter quite a little thought, and I have the following explanation to account for this phenomenon.

In the first place, I only obtain this abnormal condition of the engine when I oil abundantly. As a matter of fact, I oil about every two miles. Furthermore, it is almost impossible for me to obtain this condition on the level, but I can get it with an old machine very much easier by running down a slight grade. It seems that the engine must come up to a certain speed before this abnormal condition takes place. My explanation of this is, when the engine becomes very hot the pistons expand and almost come in contact with the cylinders. As I am lubricating very freely the oil forms a continuous film between the pistons and the cylinders, and the compression is not dependent on the piston rings. In other words, at these times I have perfect compression, the oil itself preventing a leakage past the piston. I tried to account for this on the explanation of synchronous vibration. I thought that perhaps at first nodes and loops were formed in the exhaust pipe of the engine in such a manner that a node occurred at one point of the exhaust pipe and a loop at the other, so that I had the same effect as a condenser on an ordinary steam engine, that is, my engine was exhausting into a space at less than atmospheric pressure. However, I believe the explanation as given above is more plausible.

This seems to be a very interesting phenomenon, and I should like to see the matter discussed in your magazine. Possibly some of the European riders of the F.N. Big Four have obtained this peculiar state in their engines, and can give your readers their experience. I have never heard of a large engine working in this manner, and think that perhaps this is due to the fact that an engine of greater capacity would not stand up under this enormous strain and heating. I should like your correspondent who has stated that an air-cooled engine overheats to explain why it is that I get this abnormal power only when my engine is at the maximum temperature. As a matter of fact, I am of the opinion myself that an air-cooled engine does overheat, but I cannot reconcile this opinion with the above phenomenon.

Start of the final Three Miles Race at the Tunbridge Wells Sports on Whit Monday, won by C. E. Bennett in 4 min. 56 sec.

I shall close this letter with the remark that the 1908½ model is a great improvement. I have just been up to our famous Fort George Hill, and the way that it takes my 200 pounds up that hill is surprising.

Hoping that you will not think that because I am an American rider the enclosed letter will not be of enough interest to your readers to warrant publication, and wishing your magazine the best of success, I remain,

New York. EARLE L. OVINGTON.

[Does the extra lubricating oil participate in combustion and propulsion at very high temperatures?—ED.]

EXPERIENCES WANTED.

"H. N." (Malta) is anxious to have readers' experiences of the following machines: The 5 h.p. Phänomen, the Moto-Rêve, and the 4½ h.p. four-cylinder F.N., and, as regards the latter, particulars regarding wear of the working parts, running expenses, etc.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected manuscript, drawings, and photographs will only be returned provided a stamped addressed envelope is enclosed for the purpose.

MOTOR BICYCLES FOR SALE.

2½-3 h.p. Fairy, condition as new; £16. — Tyler, Earl's Colne, Essex.

2 h.p. Minerva, M.V.; £7.—G.H., 116, Longley Road, Tooting Junction, S.W.

REX, 3½ h.p., 1904, splendid condition; £10, bargain.—45, Chalvey Road, Slough.

£8.—Lightweight, 2 h.p., B.S.A. frame, magneto, Clinchers.—10, City Road, E.C.

3½ h.p. M.M.C.; bargain, £12; footboards.—Leach, 8, Foxley Road N., Brixton.

3 h.p. Fafnir, as new, accessories, perfect; £16, exchange.—48, Sydney Road, Hornsey.

LIGHTWEIGHT, 2¾ h.p. Clarendon, 90 lbs.; £12, exchange bike.—137, Dalston Lane, London.

3 h.p. Triumph, magneto, spring forks, new tyre and belt; £24. — Cross, Jeweller, Rotherham.

TRIUMPH-MINERVA, 2 h.p., running order; £8.—21, York House, Highbury Crescent, Highbury.

ARIEL-MINERVA, 2¾ h.p., good condition; £14 10s.—George, 11, Liverpool Road, Islington, N.

3 h.p. Quadrant, in good condition, guaranteed, good hill-climber; £10.—Wenmoth, Launceston.

£12, or Offer.—3 h.p. Fafnir, Chater, Palmers.—Seen, 5, Denmark Street, Charing Cross Road, W.C.

CHATER-LEA, De Dion, 2¾ h.p., low, long bars, new tyres; £14.—77, Crescent Lane, Clapham Park.

1907 3½ h.p. Brown, magneto ignition; £20; seen any time.—Hall, 61, Parsons Green Lane, Fulham.

FAIRY Lightweight, two cylinders, perfect condition; £16; approval willingly.—Birt Morris, Bourne.

3½ h.p. Kerry, good condition, long handles, spring seat, spares; £15.—Watson, 23, East Hill, Ashford, Kent.

3½ h.p. Kerry, Clinchers, Longuemare, good condition; £12, bargain.—Horncastle, outfitter, Grays.

3½ h.p. Fafnir, Chater-Lea frame, Osborne free engine; £14.—Mason, 38, Victoria Road, Stroud Green, N.

3½ h.p. Jap, M.O.V., overhead, latest low model by Jap throughout; £22 10s.—48, Pentney Road, Balham.

FOUR-CYLINDER F.N., 4½ h.p., latest, practically new, perfect order; £32.—Sembill, jeweller, Finchley, N.

3 h.p. Motor Bike, Fafnir engine, in good condition; £15 10s. — Rossiter, South Road, Kingswood, Bristol.

ROC, 3 h.p., magneto, free engine, good order; £18 10s.—28, Grosvenor Road, Handsworth, Birmingham.

2½ h.p. Bradbury, perfect running order; £9 10s.—Holzapfel, 4, Summerhill Grove, Newcastle-on-Tyne.

2¾ h.p. Bat, De Dion engine, in splendid running order; £14.—142, Lewisham High Road, New Cross, S.E.

FOR Sale, 3½ h.p. 1905 Rex, little used, splendid climber, just overhauled; trial; £13.—Lloyd, draper, Corwen.

2¼ h.p. Bradbury, perfect condition; trial; 10 guineas; wanted, higher power. — Mickleburgh, draper, March.

3½ h.p. Motor Cycle, excellent condition, good hill-climber; £12.—Grahame, 97, Wimpole Street, London, W.

TRIUMPH, late 1907, 3½ h.p., magneto, hardly ridden; £32.—Apply, Cedric Boustead, Westfield, Wimbledon.

BAT, 2¾ h.p. De Dion engine and carburetter, splendid condition; £15.—M., High Stone Garage, Leytonstone.

2 h.p. Brown, perfect order, just overhauled, spring seat-pillar, carrier; £10. —McLennan, Castlehead, Paisley.

4¼ h.p. Bat, Stevens engine, spring frame, long handles, excellent condition, very fast, not done 800; £25.—Foreman, Halesworth.

TRIUMPH Lightweight, 1½ h.p., Longuemare carburetter, Clincher tyres, B100 saddle, in good order throughout; £7 10s.—Bunting, Wealdstone.

6 h.p. Twin Rex £18 18s.

or £4 and '07 single Rex, £6 and '06 Rex. Liberal allowances for other makes.

TWIN-CYLINDER MACHINES.

6	h.p. TWIN REX, black finish	£19 19
6	h.p. TWIN REX (1907), magneto	25 0
5½	h.p. REX DE LUXE, Roc clutch, magneto, twin tyres	27 10
5½	h.p. REX DE LUXE, shop-soiled, Roc clutch, magneto, black finish	25 0
4	h.p. TWIN N.S.U., magneto, two speeds	23 10
6	h.p. TWIN N.S.U., magneto, 2½in. tyres	23 10
5½	h.p. TWIN VINDEC, magneto	20 10
4½	h.p. TWIN MINERVA, 2½in. tyres	23 10
3½	h.p. TWIN WERNER, spring forks, light	13 13
5	h.p. TWING.B., magneto, 2½in. tyres	25 0
6	h.p. TWIN ANTOINE, low built	18 18

SINGLE-CYLINDER MACHINES.

4	h.p. ROC (1907), magneto, non-skid	£27 10
4	h.p. ROC (1907), magneto, free engine	27 10
3½	h.p. TRIUMPH (1907), magneto	32 10
3½	h.p. N.S.U., magneto, low built	19 19
2¾	h.p. REX LIGHTWEIGHT (1908), nearly new	23 10
FOUR-CYLINDER F.N., magneto		19 19
4	h.p. ANTOINE, M.O.V., 26in. wheels	14 14
3½	h.p. REX, 26in. wheels, 20in. frame	11 11
3½	h.p. REX (1907), spring forks, 2½in. tyres	16 16
3½	h.p. REX (1906), spring fork.	15 15
3½	h.p. ARIEL, M.O.V., 26in. wheels	12 12
3	h.p. ARIEL, M.O.V., 26in. wheels	10 10
3	h.p. CLYDE, M.O.V., magneto, vertical	11 11
3	h.p. WHITELEY, spray, good tyres	8 10
3½	h.p. EXCELSIOR, very powerful	8 10
3	h.p. SIMMS, M.O.V., magneto	10 10

MACHINES WITH SIDECARS.

6	h.p. TWIN REX, spring forks, and new £8 8s. Millford sidecar	£25 10
6	h.p. TWIN ANTOINE, new Millford sidecar	25 10

LIGHTWEIGHTS.

3	h.p. BRADBURY	£10	2½	h.p. MAGNETO	£10
3	h.p. HUMBER	10	3¼	h.p. REX	10
3	h.p. CALVERT	9	2½	h.p. CENTAUR	8
2½	h.p. MINERVA	9	2	h.p. MINERVA	8
2¼	h.p. REX	6	1¾	h.p. MINERVA	8
1¾	h.p. QUADRANT	6	2¼	h.p. JAP	7
2¼	h.p. BUCHET	8	2¼	h.p. ARIEL	6

Push Cycles taken in part payment.

TRICARS

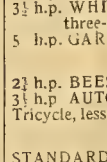
4	h.p. HUMBER, W.C., Phelon and Moore two-speed gear, coach built	£18 10
4	h.p. TRENT, W.C., open frame, two speeds, wheel steering	18 10
4	h.p. DERRICK, coach built, free engine	16 16
4	h.p. REX, free engine, special engine	17 17
3½	h.p. ROYAL SOVEREIGN, light	9 10
5	h.p. QUADRANT, two speeds	22 10
3½	h.p. WHITE & POPPE, M.O.V., Kent three-speed gear	16 16
5	h.p. GARRARD, three speeds, sprung frame	30 0

MOTOR TRICYCLES.

2¾ h.p. BEESTON HUMBER, good tyres	£6 10
3½ h.p AUTO MOTO, good order	4 15
Tricycle, less engine, two speeds, tyres	3 0

SIDE AND FORECARS.

STANDARD FORECAR, side stays	£5 0
PHŒNIX TRIMO	6 10
Pair tricar wheels with tyres	2 0
Forecar basket and springs, roomy	1 10
MILLFORD Castor Wheel	5 10
BRITISH STANDARD, rigid	3 10



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14/- each.

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Scientifically made from selected parts of hides. An efficient belt at a popular price. Outlasts two rubber belts. Correct angle, perfect drive, non-stretching. We send on approval on receipt of P.O.

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Booth's Motor Exchange,

CORONET WORKS, WADE ST., HALIFAX.

Telephone 198T.

MOTOR BICYCLES FOR SALE.

NO Reasonable Offer Refused.—2¾ h.p. Noble, going order; must sell.—Johnson, Mire Side, Carke, Carnforth.

3½ h.p. Quadrant, magneto, excellent condition; £25, or exchange lower power and cash.—218, Mortlake Road, Ilford.

FOR Sale, Minerva, 2¾ h.p., guaranteed perfect condition, with accessories; £14 10s.—3, Meteor Road, Westcliff, Essex.

NEW 3½ h.p. Twin Werner Motor Cycle, Chater-Lea throughout, special engine; £26.—Caton, Redcote, Ridgeway, Enfield.

REX, 3½ h.p., Bosch magneto, spring forks, first-class condition; trial allowed; £17 10s.—Coates, Stephen Street, Durham.

5 h.p. Twin Vindec, in perfect order, 1907 model; first cheque for £25 gets it. — O. L. Bickford, 23, Merton Street, Oxford.

3½ h.p. Kerry, Watawata, Longuemare, spring seat-pillar, splendid machine; bargain, £14.—23, Swainston Road, Reading.

3 h.p. Clyde, Simms engine, magneto, spring forks, perfect running order; photo; £13 10s.—G. Case Morris, Mawnan, Falmouth.

TWIN Roc, 1908, two speeds, free engine, magneto, Whittle belt, new condition; £44, a bargain.—Cross, Jeweller, Rotherham.

TWIN 3½ h.p. Griffon, spring forks, latest pattern engine, with vertical contacts; £18.—Warwicks, Timber Merchants, Reading.

3½ h.p. Rover, perfect running order, new belt, trembler, spray, two accumulators; £15 10s. lowest.—"Idsworth," Shanklin

2¼ h.p. Minerva, splendid running order, good climber, only wants seeing; any time; £7.—Francis, Springfield Hill, Chelmsford.

HERTLE Bruneau, about 45 lbs., new, 36 miles per hour; cost 30 guineas; any trial; £16, offers.—44, Horace Road, Forest Gate.

QUADRANT, 2½ h.p., cheap, Main-Hilton stand, spring forks, etc., splendid running order. — Edwards, Churchill Villa, Portishead.

2¾ h.p. De Dion, brass torpedo tank, B. and B. carburetter, low machine; a bargain at £12.—Pummell, 55 Mosedale Street, Camberwell.

BAT, 6 h.p. Jap, twin, spring frame, in splendid running order; £30, or motor cycle as part. — 142, Lewisham High Road, New Cross.

CLARENDON, latest, reduced from £37 10s. to £25. — Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

2 h.p. F.N., new Palmer cord, foot brake, perfect; £14; must sell; owner bought Rover car.—Holden, Park Street, Barnoldswick, Yorks.

2¾-3 h.p. Humber, two accumulators, only ridden 300 miles, perfect; £14; cash wanted.—Catt, 379, London Road, St. Leonard's-on-Sea.

2¾ h.p. Rex, footboards, Continentals, complete, and ready for the road; cash, £14 10s. — Luther Bennett, Cemetery Road, Heckmondwike.

4½ h.p. Twin Werner, Dunlops, spring forks, spring seat-pillar, powerful, perfect; £20; bought tricar.—1, Stanhope Gardens, Ilford, Essex.

3½ h.p. Brown, low built, good machine; nearest £20 or exchange for good push bike and cash. — Hockney, Aylesbury Road, Tring.

2¾ h.p. Kerry, in splendid condition and good going order; £10; no time for riding.—Garaged at 128, High Road, South Tottenham.

MINERVA, 2¾ h.p., F.N. carburetter, handle-bar control, strong, reliable, perfect running order; £15.—11, Milton Street, Burton-on-Trent.

REX de Luxe, twin-cylinder, free engine, magneto, tyres unscratched; exceptional bargain, £26 10s.—Lloyd, Victoria Terrace, Leamington.

1907 5 h.p. Twin Magneto Rex, cantilever seat, spring forks, not run 500 miles, absolutely reliable, as new; £29. — Butterworth, Pocklington.

MOTOR BICYCLES FOR SALE.

MOTOR Cycles, new, second-hand, and shop-soiled; twin Minerva, had little use, 1907 model, 4½ h.p., complete with all accessories; £25, cost £50.

1906-1907 Model 3½ h.p. Quadrant, ridden only 300 miles, with Clincher A Won heavy tyres, complete with all accessories; £27 10s., cost £50.

3 h.p. Kerry, model de luxe, shop-soiled only; 21 guineas, usual price 33 guineas.

HUNTS, 104, Newgate Street, E.C. City agents for Minerva motor cycles; old machines taken in part payment.

2¼ h.p. Lightweight B.S.A., Minerva engine, Longuemare, new back cover, good tubes, splendid condition.—Hamar, Knighton. £12 cash.

2½ h.p. Bruneau, light, low machine, Stanley belt, two accumulators, etc.; £11 no offers.—Letters, John Green, 6, Wynell Road, Forest Hill.

TRIUMPH, Fafnir engine, 3½ h.p., good running condition, £16; two Continental tyres, 26 by 2¼, the pair 25s.—Martin, Danesbury, Eccles.

3½ h.p. Ariel, low, fast, Watawata, cut-out, 26 by 2¼ Palmers, new back tyre, tube, and 20 a.h. accumulator; £11 10s. — 200, Church Road, Willesden.

ROC Royal, 1908, standard, two-speed gear, magneto, handle-bar control, ridden 500 miles, good condition; £37 10s.—Crow, Nottingham Road, Croydon.

2½ h.p. Adams-Chater-Lea, Longuemare, low built, fast, guaranteed perfect order; sacrifice £7 10s.—Withers, 27, Benyon Road, Kingsland, London, N.

TRIUMPH, 3 h.p., in perfect condition, all spares, very fast and powerful, good hill-climber; sacrifice £20 cash.—Bilton, 12, Ferndene Road, Herne Hill, S.E.

FOR Sale, new Twin-cylinder Fairy, magneto driven, not yet taken from the crate; no reasonable offer refused.—No. 65, *The Motor Cycle* Offices, Coventry.

2¾ h.p. De Dion, Chater-Lea, Palmers, long handle-bars, Longuemare, not ridden 1,000 miles; £15; photograph.—Lindsay, 281, Borough High Street, S.E.

N.S.U., 3½ h.p., magneto, spring forks, all tools, late 1907, unscratched, done 1,000 miles; expert examination; £30.—Kensley, 12, Peabody Street, Darlington.

7 h.p. Peugeot, Crownfield twin, Longuemare B26, Continental 1in. belt, 2¼ Palmer and Clincher, footboards; £22.—A. Lovill, 14, Harold Road, Leytonstone.

3½ h.p. Rover, a grand machine, ready for any test, extra large tyres, special Rover carburetter, etc.; £17 17s.; exchange entertained.—Bunting, Wealdstone.

3½ h.p. Phelon and Moore, two speeds, free engine, not ridden 500 miles, Grose back tyre, perfect for passenger work; £30.—54, Otley Road, Bradford.

TRIUMPHS, Triumphs, 1907, for £41, 1908 £48; your machine part payment.—Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

TWO Motor Cycles, 4 h.p. Kelecom, 3 h.p. Fafnir, first-class running order, selling through ill-health; full particulars on application.—Rumball, Ramsbury, Wilts.

3½ h.p. Brown, late 1907, excellent condition, Palmer cord tyres, variable pulley, lamp, stand, spares; cost £43, accept £20.—46, Disraeli Road, Forest Gate, E.

3¼ h.p. Rex, as new, 2¼ Palmers, Watawata belt, Brooks B100 saddle, with all accessories; cost £55, accept £18.—Garaged at Maidenhead. Monk Jones, Teignmouth.

2½ h.p. Lloyd's, handle-bar control, paraffin tanks, new Dermatine, new accumulator, adjustable pulley, Longuemare; seen any time; £12.—5, Manor Road, Romford.

MINERVA (1907), 2¾ h.p., magneto, perfect condition, climb anything in reason; owner going abroad in July; offers for immediate sale.—T., 198, Fulham Road, London.

A LART, 3 h.p., in perfect condition, just been overhauled, splendid hill-climber, inclined engine, Continental tyres, 28 by 2, trembler coil, two accumulators, two belts; £8; give buyer 50 miles non-stop run.—Seen after 6 p.m. at 4, Oakney Street, Battersea Park Road.

SPECIAL PURCHASE.

LIQUIDATION STOCK OF

CLINCHER MOTOR TYRES.

All new, unused covers, beaded edge.

26 × 2in., 18/6. 26 × 2¼in., 20/-.
26 × 2½in. Extra Heavy Covers ..... 22/- each.
28 × 2½in. Heavy Tricar Covers ..... 23/- „

Approval on receipt of cash deposit.

£3 DOWN, 2¾ h.p. MINERVA, spray carburetter, 26″ wheels, newly enamelled and plated £11 0
£3 DOWN, 3 h.p. NOBLE, vertical, M.O.V., spray carburetter, good hill-climber 10 0
£3 DOWN, 3 h.p. REX, vertical engine, trembler coil, girders, etc. 10 0
£3 DOWN, 3½ h.p. REX, vertical engine, trembler coil, aluminium finish 11 0
£3 DOWN, 2¾ h.p. HUMBER, spray carburetter, trembler coil, fine goer 10 0
£3 DOWN, 2½ h.p. SINGER, vertical engine, magneto ignition, Singer carburetter, 26″ wheels 10 0
£3 DOWN, 3¾ h.p. 1905 REX, vertical engine, M.O.V., spray carburetter, 21″ frame, 26″ wheels 13 0
£3 DOWN, 3 h.p. EXCELSIOR, spray carburetter, fine goer and very powerful 10 0
£3 DOWN, 2¾ h.p. HUMBER, torpedo tank, spray carburetter, trembler coil 9 0
£3 DOWN, 3½ h.p. DUX, vertical, M.O.V., spray, grand goer 10 0
£3 DOWN, 3 h.p. MINERVA, vertical, M.O.V. spray carburetter, fine machine 12 10

All the above £3 down, balance 5/- per week. First come, first served.

MAGNETO IGNITION MACHINES.

1908 F.N. Lightweight £32 0
1908 REX Lightweight 23 0
3½ h.p. Four-cylinder F.N. 23 0
5½ h.p. REX-DE-LUXE, almost new 31 0
5½ h.p. REX-DE-LUXE, good 29 0
4¾ h.p. Twin G.B., Nala two-speeds 32 0
4 h.p. ANTOINE, 1907 ..... 19 0
2½ h.p. SINGER, vertical 10 0

DUST LIFTERS.

5 h.p. Twin Peugeot, a flyer £22 0
4½ h.p. Four-cylinder DURKOPP 23 10
3½ h.p. ARIEL, M.O.V., 26″ wheels 14 0
5½ h.p. REX-DE-LUXE, twin tyres, clutch .. 23 0
5 h.p. Twin KERRY, very low 19 0
5½ h.p. Twin REX, a dream 19 0
3½ h.p. 1906 REX, spring forks 15 0
3 h.p. TRIUMPH 19 0
3 h.p. BROWN, vertical, low 12 0

FASHIONABLE LIGHTWEIGHTS.

1¾ h.p. MINERVA, spray £6 0
2 h.p. WERNER, low, vertical 8 10
1¾ h.p. MINERVA, good 5 10
2 h.p. MINERVA, M.O.V., 26″ wheels 9 9
2 h.p. CYCLONE, vertical, spray 7 0

Push bike part payment.

CAMEL V BELTS.

LONDON TO EDINBURGH.

"The 'Camel' Belt has gone through splendidly. I never touched it in 500 miles. It is, in my opinion, the best of its kind."—J. L. BARRATT.

Send cash for sample length on approval. ¼″ 9d., ⅜″ 1/-, ½″ 1/4, 1″ 1/8 per foot. Any length cut. Fasteners 6d. each.

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5 h.p. REXETTE, two speeds £29 0
4½ h.p. REXETTE, water-cooled 25 0

SIDECARS.

Montgomery, 26″ £4 10 | Liberty, rigid £4 10
Ariel, flexible 4 0 | Montgomery, flexible 4 10
Forecar Attachment, extra good tyres, £4 10s.

ODD BARGAINS.

Spring Seat-pillar, 5/6; Twin Coil, 10/-; Lycett's B Toolbag, 6/-; Lycett's L72 Saddle, 6/9; Double-twist Horn 4/8, large size 6/-; Motor Cycle Back Brake, 6/-; Rex Free-wheel, 4/-; Low-tension Magneto, 30/-; Osborne Free-engine Clutch, 27/6; Whittle Belt, 8/6.

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Genuine Continentals.	Cover.	Tube.	Genuine Continentals.	Cover.	Tube.
26 × 2	24/-	9/6	28 × 2	25/-	10/-
26 × 2¼	25/6	10/-	28 × 2¼	27/3	10/6
26 × 2½	29/6	11/-	28 × 2½	29/9	11/3

3/- allowed for old covers, 2/- for old tubes.
Traders and Agents send for discounts.

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FIRM. RIGID. STRONG.

For 24″, 26″, or 28″ wheels. 4/9 per pair.
Send for Price List of Accessories. Pounds saved.
WANTED.—Triumphs, Vindecs, N.S.U., or any good 1907 or 1908 machines. Cash waiting.

E. FARRAR,

ALBION WORKS, SQUARE ROAD, HALIFAX.

Next door to Square Church.

MOTOR BICYCLES FOR SALE.

WOLF Featherweight Motor Cycles, complete, £17; complete attachments to fit any roadster cycle, £13 10s., in stock.—Anglo-Saxon Motor Co., 31, Newgate Street, E.C.

ARIEL, 2½ h.p., surface carburetter, trembler coil, tyres in good condition, thorough going order; price £7, early purchaser.—Cranston, 20, North Holmes Road, Canterbury.

EXCELSIOR, 3½ h.p., no trouble machine, perfect condition, only run 1,500 miles, Clinchers, 26 by 2¼, Watawata, Longuemare; £14; seen any time.—30, Dault Road, Wandsworth.

3 h.p. Clarendon, spring forks, new Longuemare carburetter, various jets, pulls well, good appearance; £13.—Apply, letter, or after seven, Houston, 13, Salt Avenue, Stafford.

2½ h.p. Bradbury, low frame, Longuemare carburetter, new tube and cover on back, stand, good running order, not a flier, but a reliable mount; £12.—W. J. Short, Kimbolton.

3¼ h.p. Chater-F.N., Bassee-Michel, P. and B., Continentals, two belts, carrier, stand, complete machine, lamp, condition as new; £18.—Apply, 5, Coptic Street, Bloomsbury, W.C.

ARIEL, 3½ h.p., splendid condition, with accessories and spares, £16; F.N., 1¾ h.p., £8; both machines just overhauled, tyres like new.—Darby, 27, Park Avenue, Chelmsford.

4½ h.p. Twin Alcyon, magneto, excellent spring forks, spring saddle-pillar, B. and B. handle-bar control, fast and reliable, show machine; £23.—E. Turner, The Grove, Sutton Coldfield.

3 h.p. N.S.U., magneto, special spring frame, N.S.U. free engine clutch, complete with all spares and Montgomery sidecarriage; £22 10s.—Rotom, 9, Cannon Place, Hampstead Heath.

FOR Sale, motor cycle, 3½ h.p. Ariel, low frame, in very good condition; can be seen at any time before 7 o'clock; £13 13s., or near offer.—E. White, Farriers' Arms, Lower Road, Deptford.

TWIN, 3½ h.p. Peugeot, Simms-Bosch magneto, lamp, generator, horn, speedometer, tyres perfect, low frame, long handle-bars, very fast; £28.—Hobdey, Blackfriars Street, Manchester.

1908 Triumph, only month old, complete with Autoclipse lamp and generator; first caller can have it for £40 cash.—Apply, any time, Hurlock, jun., 70, Walworth Road, S.E. 'Phone, 14942 Central.

1907 3½ h.p. Triumph, magneto, Goodrich non-skid cover on back, Clincher on front wheel, everything in perfect order, spares; £32 cash.—Duncan, 2, St. Mary's Place, St. Andrew's, Fife.

4½ h.p. Special Roc, in new condition, Stevens engine, 88 by 98, magneto, clutch, and accessories, not ridden 500 miles, guaranteed perfect; £28.—H., 7, Weymouth Mews, Oxford Circus, W.

1907 2¾ h.p. Minerva, Chater, Palmer cords, Dermatine, grand puller, £12 12s.; trailer, £1; also lady's 2½ h.p. Jap, handle-bar control, sprung; £12 12s.; trials.—61, Denmark Hill, Camberwell.

3½ h.p. Brown, magneto, Palmer cords, in good condition, lamp, pump, stand, carrier, and lot of spare tools, in thorough going order, very powerful; £20.—F.G., 94, High Road, South Tottenham.

4 h.p. Antoine, grand going order, Stanley belt, also Forecar made for same, good condition; bargain, £20, or exchange twin Rex, Roc clutch.—Apply, letter, Mac, 33, Clipstone Street, London, W.

1906 2¾ h.p. Brown, brand new condition throughout, absolutely perfect, wonderful hill-climber, easy starter; absolute bargain, £14 for quick sale.—Stanton, 86, Colvestone Crescent, Dalston, London.

1907 3½ h.p. Quadrant, spring forks, absolutely perfect, crawl in traffic, climb a mountain, easily take sidecar, magnificent machine; £22, or lower power and cash.—Motor, 9, French Place, Shoreditch, London.

A BARGAIN.—3 h.p. Triumph (late), 1906, accumulators, perfect condition, latest spring head, ball engine, very silent, not ridden 4,000 miles; £20.—F. E. Cox, West Kent Garage, Sydenham Road, Sydenham, S.E.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—All the undermentioned motor cycles are in guaranteed good running, and can be seen on the road at the address.

MAUDE'S.—Rex, 1908, two speeds, twin tyre, 3½ h.p., magneto, like new; £30.

MAUDE'S. — Zenith Bicar, two speeds, handle starting, newly enamelled and done up by the makers. Now, ye godfathers, how's this at £27.

MAUDE'S.—Zenith Bicar, 4 h.p., free engine, new rear tyre; £21.

MAUDE'S.—N.S.U., twin, magneto, two speeds, spring forks, with sidecar; £35.

MAUDE'S.—Zenette, sprung frame, girder forks, free engine, 3 h.p.; £22.

MAUDE'S.—Rex, 1907 model, 3½ h.p., just been overhauled; £18.

MAUDE'S.—Roc, 1908 model, two speeds, 4 h.p., magneto; £38.

MAUDE'S.—Ariel, 3 h.p., B. and B. carburetter, vertical, 26in. wheels, very good condition; £15.

MAUDE'S. — Werner, twin, 26in. wheels, spring forks, spray, accumulator ignition; £20.

MAUDE'S. — Minerva, 3½ h.p., vertical, M.O.V., spray carburetter; £17.

MAUDE'S.—Minerva, 3½ h.p., 26in. wheels, low built; £18.

MAUDE'S.—Minerva, 2¾ h.p., vertical, new tyres, saddle, silencer, and pedals, thoroughly overhauled and re-enamelled; £12.

MAUDE'S.—Clyde, 2¾ h.p., vertical engine, magneto, Longuemare spray carburetter; £16.

MAUDE'S.—Clarendon, 3 h.p., vertical engine, spray, very good tyres; £11.

MAUDE'S.—2¾ h.p. Minerva, 1906 model, 26in. wheels; £15.

MAUDE'S.—Rex, 50 guinea model, non-skid to rear, Palmer front; £10 10s.

MAUDE'S.—Humber, 2¾ h.p., good condition and order throughout; £8 10s.

MAUDE'S.—Bat, 3½ h.p., Bat engine, Longuemare spray, with sidecar; £28, without £23.

MAUDE'S.—Rex, 22in. frame, trembler, 50 guinea model; £10 10s.

MAUDE'S.—Lloyds, 2 h.p., vertical engine, footrests, spray, 26in. wheels; a beauty, £12.

MAUDE'S.—Rex, 3⅜ h.p., 1906 model, good condition, standard; £15 15s.

MAUDE'S.—Rex twin, 6 h.p., cantilever seat, 50 guinea model; £22.

MAUDE'S.—Fafnir, 3 h.p., vertical, spray; £12.

MAUDE'S.—Zedel, 2 h.p., vertical engine, low built, 26in. wheels, as new; £11; to be recommended as a lightweight.

MAUDE'S.—Jap, Phœnix built, good tyres; £9.

MAUDE'S.—Minerva, 2 h.p., M.O.V., spray; £8.

MAUDE'S.—Rex, 26in. wheels, low built, spray carburetter, footboards; £14 14s.

MAUDE'S. — Bayliss, 3½ h.p., very good tyres; £11.

MAUDE'S.—Another Bayliss, 3½ h.p., special price £8, good running order.

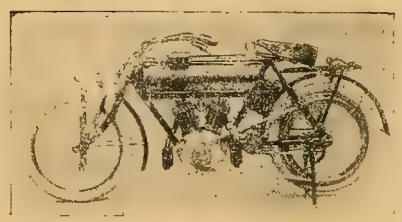
MAUDE'S.—Humber, 2 h.p., trembler coil, chain drive, good running order; £9.

MAUDE'S.—Singer, 2 h.p., magneto, Singer carburetter; £8.

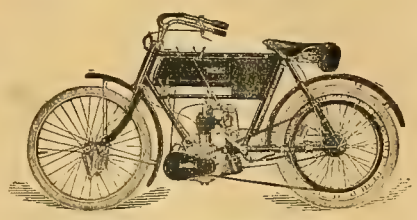
MAUDE'S. — 45s. down and twenty-four weekly payments of 7s. 6d. secures 3½ h.p. Excelsior, 3 h.p. Rex, 2 h.p. Humber, 2¾ h.p. Humber, 2½ h.p. Jap, or 2 h.p. magneto Singer. Delivery upon first payment.

MAUDE'S Motor Mart, Powell Street, Halifax (behind the Victoria Hall), offer without doubt the very best bargains in motor cycles, all of which are guaranteed in good running order before despatch. Write us and let us have your requirements, and we will quote you best terms for exchange or cash.—Nat. tel., 433.

MINERVAS.



2¾ h.p. ..... £29. 3½ h.p. ..... £32.
4½ h.p. ..... £39. 7-8 h.p. ..... £45.
Magneto £5 extra, singles and twins. Spring forks, 50/-.



ARIEL 2½ h.p. LIGHTWEIGHT.

Coil and accumulator ignition	32 Guineas.		
Magneto	37 „		
3½ h.p. VINDEC	£48	10	0
5 h.p. VINDEC	53	0	0
5 h.p. TOURIST	52	0	0
2¾ h.p. MINERVA	29	0	0
3½ h.p. MINERVA	32	0	0
4½ h.p. MINERVA	39	0	0
7-8 h.p. MINERVA	45	0	0
1¾ h.p. F.N.	35	0	0
4½ h.p. F.N.	50	0	0
3½ h.p. TRIUMPH	48	0	0
3½ h.p. SILVER	39	0	0
3½ h.p. BROWN	37	0	0

Let us quote you for Exchange for any of the above. Prices rock bottom. Cash or Exchange.
Any other make gladly quoted upon request.

TRICARS.

REX Triette, 6 h.p., non-skid	£25	0	0
HUMBER Tricar, chain drive	12	0	0
REXETTE, 8 h.p., twin tyre, two speeds and reverse, water-cooled, wheel steering.			

FORECARS, etc.

Nice Forecar, with front brakes	£5	0	0
BAT Sidecar, good condition	4	10	0

SIDECARS.

Let us quote you for Cash or Exchange for a new 1908 Montgomery Sidecar. Catalogue and terms free.

CARS.

HUMBERETTE, 5½ h.p., water-cooled, two speeds and reverse, thoroughly up-to-date	£38	0	0
DARRACQ, 24/30 h.p., three forward and reverse, new tyre	120	0	0
GOBRON-BRILLIE, four speeds and reverse, equal wheels	100	0	0

Motor Cycles or Tricars part payment.

TUBES.

FULLY GUARANTEED.

26 x 2in.	6/-	28 x 2in.	7/-
26 x 2¼in.	7/-	28 x 2¼in.	7/6.
26 x 2½in.	8/-	28 x 2½in.	8/-

Immediate Delivery. Approval.

COVERS.

26 x 2in.	16/-	28 x 2in.	17/-
26 x 2¼in.	17/6.	28 x 2¼in.	18/-
26 x 2½in.	21/6.	28 x 2½in.	22/-

"ALBANY" BELTING.

⅜in. 7d., ½in. 8d., ⅝in. 9d., 1in. 10d. per foot.

Maude's Motor Mart,

POWELL ST., HALIFAX.

National Telephone 433.

MOTOR BICYCLES FOR SALE.

MINERVA, 1¾ h.p., perfect working order; best offer accepted.—62 Colvestone Crescent, Dalston.

1908 New Triumph, delivered last week, unridden, exactly as received; £42 10s.—136, South Lambeth Road, London.

2¾ h.p. Kerry, Model de Luxe, in perfect running order, guaranteed; price 10 guineas.—Taylor, 27, Oxford Road, Windsor.

6 h.p. Twin Jap, Chater-Lea, and sidecar, metal clutch, good condition, all accessories; £30.—Williams, 78, Romany Road, Norwood, S.E.

3½ h.p. Minerva, magneto, spring forks, perfect condition, spares; £28, or nearest; seen after 6.—A. Roberts, 291, Green Lanes, Finsbury Park, London, N.

3½ h.p. Fafnir, low, 24in. wheels, horn, lamp, good accumulator, trembler, good hill-climber; £10 10s., or nearest offer.—B. Roper, 12, Gloucester Road, Peckham, S.E.

2¾ h.p. Minerva, 1907, perfect condition, two accumulators, new Advance pulley, two belts, new studded Goodrich band on back tyre; £20. — Layzell, Ockendon, Essex.

TWIN Rex, winner hill-climb, electric horn, thumbslide control, new Dermatine belt, spare Whittle, stand, spares, excellent order, fast, powerful; £18.—C. Lloyd, Shirburn, Ramsgate.

KERRY, 3½ h.p., very fast, new piston and rings, ⅞in. Stanley-Dermatine, long handle-bars, switch handle, with spare cover and belt; £13 10s.; bought twin; trial.—Leaden, Picardy Schools, Belvedere.

3 h.p. Ariel, Osborne four-speed and free engine fitted, long handlebars, low seat, two accumulators, B. and B., in good order and condition; photo; £16.—No. 84, *The Motor Cycle* Offices, Coventry.

2¾ h.p. Minerva, inclined, Chater, Dunlops, long bars, fast and powerful, everything complete, condition and appearance almost like new, not an old crock; 12 guineas.—C. Smith, 9, Shenley Road, S.E.

4 h.p. Twin Werner and Sidecar, fast, low, reliable, Dunlops, Samson on back, two accumulators, splendid condition; £20, or offer; any trial; owner going abroad.—34, Great Hermitage Street, Wapping, E.

TRIUMPH, 1908 model, ridden 500 miles, latest improvements, in perfect condition, and equal to new, complete with lamp, horn, and every accessory; £40; buying car.—S., 169, Loughborough Road, Brixton, S.W.

REX, Rex, from 25 guineas and your old machine taken in part payment; send for list of both Triumph and Rex from their agents, Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

3½ h.p. Minerva, 1907 machine, ready for the road, fully equipped, and without a blemish; an exceptional bargain, £24; Fit-all two-speed gear (already on) may be taken or not, as required. — Bunting, Wealdstone.

MINERVA, 2 h.p., low and fast, long bars, in perfect running order, two accumulators, spare belt, Lucas gas lamp, Price's stand, F.N. carburetter; seen after 7 p.m.; £9. — Pickard, 734, Holloway Road, Upper Holloway, N.

3½ h.p. White and Poppe, Chater-Lea frame, spring forks, Stanley-Dermatine, footboards, 2¼in. Palmer cords, Bowden clutch, has won two first prizes; £17, or with Liberty sidecar £20.—Gould, 10, High Road, Chiswick, W.

EDINBURGH.—Scottish readers be sure not to miss our grand show of motor cycles. Stands 126 and 127, Industrial Hall, Scottish National Exhibition; 16 different makes shown by Alexander's Motor Exchange, 110, Lothian Road, Edinburgh.

EDINBURGH Exhibition, Industrial Hall, Stands 126 and 127; finest exhibition of motor cycles ever shown on any one stand, from May till October.—Alexander's Motor Exchange, Lothian Road.

EDINBURGH. — Vindecs, Quadrants, Rexes, Adlers, Moto Reves, Ariels, Zeniths, Minervas, Griffons, Nortons, N.S.U., Advances, Rocs, etc., in stock, and to be seen at Alexander's Motor Exchange, Edinburgh.

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LONDON Rex Agency.—Complete and representative stock of all models on show.—Store Street, W.C.

LONDON Rex Agency offer all models on advantageous terms; cash, gradual, and exchange.

LONDON Rex Agency.—Featherweights; 25 guineas, magneto Rex.—Horner's, Store Street, W.C.

LONDON Rex Agency quote per return exchanges; give particulars old machines.

LONDON Rex Agency.—Appointments at all times promptly attended to. Notify requirements.

LONDON Rex Agency.—5 h.p. Twin Tourist; 40 guineas; exchanges on this model. 'Phone, 13456 Central.

LONDON Rex Agency.—5 h.p. de Luxe, two-speed gear, perfection for sidecar work.

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LONDON Rex Agency.—W. Hayes, by special arrangement with the Rex Co., has now resumed control of this department.

LONDON Rex Agency.—Eight different Rex models stocked ready for immediate delivery.

LONDON Rex Agency.—Ring the changes at the largest exchange agency, Store Street, W.C.

LONDON Rex Agency have for immediate clearance second-hand machines from £5.—London Rex Agency.

3½ h.p. Bradbury, low; £12.—Below.

2¾ h.p. Minerva, Chater-Lea; £12; owner giving up.—F. Clarke, Ballure House, New Moston, Manchester.

BRIGHTON.—3 h.p. Olympic; sacrifice £6. — Malden, Windlesham House, Brighton.

LIGHTWEIGHT, 2¼ h.p. engine, as new; £8 10s., bargain.—134, Highgate Road, Kentish Town.

2 h.p. Lightweight, low built, vertical engine, spray; what offers?—3, Shrubland Grove, Dalston.

KERRY Motor Bicycle, 2¾ h.p., Clinchers very reliable; £9 10s.—A., 8, Herndon Road, Wandsworth.

3½ h.p. Brown, re-en[illegible]led and plated, bargain, £12 10s [illegible]on, 103, Archel Road, W. Kensing[illegible]

TRIUMPH, 3½ h.p., 19[illegible] gneto, perfect order; sacrifice £[illegible] argain. — Stacy Marks, Artist, Leamington.

1907 3½ h.p. Quadrant, two accumulators, spring forks, perfect; £18 10s.—8, Barrett Street, Manchester Square, London.

TWIN, magneto, 4 h.p. N.S.U., guarantee every detail perfect.—Motorist, Avon Cottage, Tiddington Road, Stratford-on-Avon.

3 h.p. Quadrant, spring forks, excellent condition, powerful, fast, well behaved machine; £13 10s., real bargain.—Motor, 86, Colvestone Crescent, Dalston, London.

QUADRANT, 3½ h.p., 1906, perfect condition, complete set of spares, three-speed gear, and free engine; £22.—Power, 67, Woodfield Road, King's Heath, Birmingham.

3½ h.p. Minerva, spring forks, excellent condition, fast, reliable, good hill-climber; photo sent; will ride 100 miles to bona fide; £18.—55, Cavendish Road, Harringay.

2 h.p. De Dion-Hudson, long bars, Longuemare, 26in. wheels, Dunlops (unscratched), every improvement, magnificent machine, fast and reliable; £9, bargain.—13 Baythorne Street, Bow.

TWIN REXES
£18 18s. 0d.
TWIN REXES
£18 18s. 0d.

SPECIFICATION.—Low frame, long bars, low saddle, Rex patent spring forks and foot brake, trembler coil, good tyres, and guaranteed in running order. Any machine taken in part payment.

3½ h.p. **TRIUMPH** (new)....	1908	£48	0
2¼ h.p. **REX** (new)	1908	26	5
3½ h.p. **REX** Tourist (new) ..	1908	36	15
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5 h.p. **REX** Tourist (new) ..	1908	42	0
5 h.p. **REX DE LUXE** (new)	1908	52	10
3½ h.p. **N.S.U.**, magneto (new)	1908	42	0
5½ h.p. **N.S.U.**, magneto (new)	1908	52	0
N.S.U. Lightweight (new) ..	1908	34	10
5 h.p. Twin **VINDEC**, magneto..		35	0
6 h.p. 1907 Twin **REX**, nearly new		18	18
6 h.p. 1906 Twin **REX**, nearly new		18	18
5½ h.p. Twin **REX**, black finish ..		18	18
5½ h.p. **REX DE LUXE**, magneto		27	10
Twin **REX**, black finish, as new ..		18	18
6 h.p. Twin **REX**, non-skids		18	18
6 h.p. Twin **REX**, magneto		22	10
5½ h.p. Twin **REX**, 2¼ Peter Unions		22	0
3½ h.p. **REX**, 1906, 2¼ tyres.....		16	5
3½ h.p. 1906 **REX**, spring forks		15	0
3½ h.p. Magneto **REX**		18	10
3¼ h.p. **REX**, spray, 21½ frame		11	10
3½ h.p. 1906 **REX**, spring forks		15	0
3¼ h.p. **REX**, spray, fine climber		11	10
5 h.p. Twin **ONAWAY**, very low		22	10
3½ h.p. **MINERVA**, 26 × 2¼ Clinchers		16	10
3 h.p. **GIVAUDAN**, nearly new		16	0
3 h.p. **ROVER**, 26 × 2¼ Palmers		13	10
3 h.p. **LLOYD'S**, 26 × 2¼ Palmers		13	10
4 h.p. **ANTOINE**, spring forks ..		16	[illegible]
3½ h.p. **MINERVA**, spring forks		17	10
4-5 h.p. Twin **ALCYON**, two speeds		23	10
4 h.p. Twin **WERNER**, fine machine		19	19
4½ h.p. Twin **HADLEY**, long & low		17	10
4 h.p. **ANTOINE**, 26 × 2¼ tyres ...		16	10
2¾ h.p. **PHELON AND MOORE**		27	10
3½ h.p. **SIMMS**, mag., 2¼ Palmers		17	10
3½ h.p. **QUADRANT**, 1906		18	10
6 h.p. Twin **ANTOINE**, R.O.M...		2[illegible]	0
5 h.p. Twin **SAROLEA**		19	10
3½ h.p. **MINERVA**, 1906		15	0
2¾ h.p. **F.N.**, special frame		11	10
3¼ h.p. **REX**, 22 frame		11	10
2½ h.p. **MINERVA**, 26 × 2.....		11	10
1¾ h.p. **EXCELSIOR**		5	10
3 h.p. **BROWN**		12	10
2¼ h.p. **CLEMENT**, very low		11	0
1¾ h.p. **SIMMS**		7	0
1¾ h.p. **SIMMS**, magneto		7	0
1¾ h.p. **MINERVA**.....		5	15
2 h.p. **RALEIGH**, spray.....		8	0
2 h.p. **PRINCEPS**		6	0
1¾ h.p. **QUADRANT**.....		5	15
2 h.p. **UNIVERSAL**, spray.....		6	15

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Osborne Four-Speed, fit Rex..	£2	15	0
N.S.U. Two-Speed	3	0	0
40-hour Dinin Acc. (new)	1	0	0
„ „ Singer „ (new)	1	0	0
New Calmon Tyres.....	0	15	9
Xl'all Spring Forks.....	0	12	0
Brooks B.100 Saddle	0	11	0
New Rubber Belting..per foot	0	0	9
Price's Stands	0	5	11

HALIFAX.—45s. deposit and six monthly payments of 29s. 6d. secures 2¾ h.p. Excelsior, 2¾ h.p. Humber, 3 h.p. Hobart, 3 h.p. Lloyd's, 2¾ h.p. Minerva, 3 h.p. Auto-motor, 3½ h.p. Rex, 2¼ h.p. Aurora, 2½ h.p. Minerva, spray, 3 h.p. M.M.C.; all guaranteed running order.

THE HALIFAX MOTOR EXCHANGE,
16, WESTGATE, HALIFAX.
Telephone 766 Telegrams, "Perfection."
High-class Machines wanted for spot cash.

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HAMPSTEAD.—Lightweight Minerva, good condition and going order; only £4 10s great bargain.

HAMPSTEAD.—3½ h.p. Bat, low and powerful, good tyres; bargain; guaranteed £10 only.

HAMPSTEAD.—3½ h.p. White and Poppe Chater-Lea frame, very low, grand condition; £16.

HAMPSTEAD.—3½ h.p. Minerva, new November, 1907, magnificent condition; £2 with all spares.

HAMPSTEAD.—3½ h.p. Minerva, late 190 spring forks, splendid condition, ne tyres; £17.

HAMPSTEAD.—1¾ h.p. F.N., lightweigh only run few miles, grand condition £20, bargain.

HAMPSTEAD.—3 h.p. Triumph, late 190 spring forks, good tyres, new cond tion; £20.

HAMPSTEAD.—3½ h.p. late 1907 Triumph magneto, and spring forks, with a spares; £30.

HAMPSTEAD.—3½ h.p. 1908 brand new Tr umph, magneto, and spring forks; £3 bargain.

HAMPSTEAD.—F.N., 1¾ h.p., 1908, bran new, lightweight, magneto, and sprin forks; £30.

HAMPSTEAD.—3 h.p. Triumph, genuine £16; good tyres and condition; grea bargain.

HAMPSTEAD.—Twin Griffon, late 1907, ma neto, and spring forks, almost new; £2

HAMPSTEAD.—3½ h.p. Griffon, with sprin forks; £15, great bargain; guarantee

HAMPSTEAD.—Brand new 1¾ h.p. ligh weight, Griffon, with spring forks; £2 bargain.

HAMPSTEAD.—6 h.p. Kerry, twin, la model, handle-bar control, long handl bars, very low, Riches tubes, two new a cumulators, new tyres, excellent condition bargain, £25.

HAMPSTEAD for Bargains.—Sole agen for Griffons, Minervas, F.N.'s, Tr umphs, etc.; liberal allowances or e changes.—Key, 5, Heath Street Motor Work Tel. 2678, P.O., Hampstead.

3½ h.p. Twin-cylinder Peugeot, Truffau forks, accumulator ignition, goo condition, and little used, many spare lowest £18.—Forster, 4, Lloyd's Avenue, E.

BRAND New 1907 Twin Magneto Rex, sprin forks, cantilever seat, 2¼ Palmers, bor stand, every imaginable spare; inspectio invited; every satisfaction given; a genuin thing; £28.—Bosher, Wyncroft, Eghar Surrey.

ARIEL! Ariel!! Ariel!!!—For immediate d livery, the 2¾ h.p. lightweight; writ for catalogue and full particulars; also h.p. and 5 h.p. twin-cylinder models; a fe 3 h.p. and 5 h.p. twins at clearance price —Ariel Works, Bournbrook, Birmingham.

3 h.p. Humber, free engine clutch, excelle condition, in perfect running orde tyres good as new, horn, Salsbury aceti lene lamp, number plates, stand, and ca rier, Brooks saddle, spares, etc.; price £12. Scott, 537, Garratt Lane, Wandsworth, Lon don.

ATTENTION!—Expert's Mount, 4 h. Aster (80 by 90), Chater-Lea, Collie spring forks, 1in. belt, B100 saddle, Bowde petrol strainer, Chase and Bowden brake little used, absolutely in pink of condition throughout; £16 10s.—Robbins, 334, Clapham Road, S.W.

5 h.p. Vindec Special, two-speed, magneto late 1907, done about 1,000 miles, bette than a new one, would pull sidecar any where, everything complete, not a penny t be spent on it, most genuine bargain of th year; owner has had to give up riding; th first £39 takes it.—A.W., 24, Burnhill Road Beckenham, Kent.

2¾ h.p. F.N., magneto (November, 1907 variable pulley and belt clip, ne belt, three Rich's tubes, Wright's footrest specially silent silencer, stand and carrie handle lever to exhaust lifter, extraord narily economical machine to run, perfec condition; £22 10s., no offers; better tha new. — Radermacher, Shipton Moyne, Te bury, Gloucestershire.

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SHEFFIELD.—Do not delay; first cheque receives each bargain.

3 h.p. Humber, free engine clutch, splendid condition; £9 10s.

2¾ h.p. Humber, nearly new Palmers, suit tall rider; a bargain, £8 10s.

3 h.p. Automotor, very long and low, torpedo, footboards, a regular mover; £12.

3 h.p. Rex 50-guinea model, giving it away at £9 10s.

6 h.p. Rex Triette, magneto, like new; lowest £35.

LET Us Have Your under-powered machine, we will fix you up with a good machine; no fancy prices with us.—Note the address, Millhouses, Motor Exchange, Sheffield.

ARIEL, 2¾ h.p., spring forks, Collier pulley, best tyres, and good order; bargain, £9. — Write, Motor, 23, Birkbeck Avenue, Acton.

5½ h.p. Magneto G.B., very low frame, fitted with a Zedel twin-cylinder engine; £20 10s.—Wauchope's, 9, Shoe Lane, E.C.

3½ h.p. Ariel, with genuine Minerva engine, brand new covers, in excellent order; price £13.—T. Baker and Sons, Friar Street, Reading.

3½ h.p. Genuine Minerva, B.S.A. fittings. Palmer tyres, in grand running order; price £12.—T. Baker and Sons, Friar Street, Reading.

TRIUMPH, magneto, 1907, £32; splendid condition, little ridden, spares, new lamp and tube.—Tate, Grosvenor House, Menston.

5½ h.p. Rex de Luxe, magneto, 1908 model, black finish, Roc free engine clutch, brand new; 30 guineas.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

£36.—5 h.p. Light Tourist Vindec, magneto, new tyres, adjustable pulley, etc., in perfect condition.—Campbell, The Mansion, Sundridge Park, Bromley.

2¾ h.p. Humber, chain drive, perfect condition, tyres as new, starts first push; bargain. £9 10s.—Hillcrest, Mansel Road, Small Heath, Birmingham.

3½ h.p. Twin-cylinder Werner, engine just overhauled, guaranteed in grand running order; price £18 10s.—T. Baker and Sons, 36, Friar Street, Reading.

6 h.p. Twin J.A.P., large flywheels, in low Chater-Lea frame, 26 by 2½ tyres, in excellent running order; £25.—Seen at Wauchope's, 9, Shoe Lane, Fleet Street, London.

£5 15s.—2 h.p. Minerva, spray, Clinchers, V belt, handle-bar control, Brooks saddle, horn; trial allowed; part exchange. —Strawberry House, Goldsmith Road, Acton.

2 h.p. Light Fairy, twin-cylinder engine, chain and belt drive, in excellent condition, horizontal engine; £15 15s.—Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

3¼ h.p. N.S.U., magneto ignition, 20in. frame, Peter-Union tyres, two-speed gear and free engine, perfect condition; £25; approval.—Eagles and Co., High Street, Acton.

3½ h.p. Minerva, late 1906, in splendid condition, spring forks, new Dermatine; £17; also sidecar, upholstered in green, £3 or offers.—119, Fawnbrake Avenue, Herne Hill.

3¼ h.p. Rex, just been thoroughly overhauled, new tyres, spring seat-pillar, everything in splendid condition and good running order; £12 for quick sale.—Liquorish, 768, High Road, Tottenham.

1907 Twin Norton, 3½-4½ h.p., Peugeot engine, Druid spring forks, low built, only ridden 800 miles splendid condition, all fittings included; £27 10s., or near offer. —138, London Road, Kingston, Surrey.

3¼ h.p. Bat, genuine De Dion engine, spring frame, fitted with a Fit-all two-speed gear, this is a perfect touring machine, and will stop at nothing in hills; price £22 10s.—Wauchope's, 9, Shoe Lane, London, E.C.

SUNDERLAND.—4 h.p. twin Werner, magneto, Fit-all two-speed, spring forks, footboards, most luxurious machine, very fast and powerful; any trial; cost £60, accept £29.—Lambert, 307, High Street West, Sunderland.

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A new type of handy "spare" accumulator.

The 'FLEET'

4 volt.

5 amp. Hours.

Size, 3⅜in x 1in. x 4½in. over terminals. Best celluloid case and lid. Non-corrosive terminals and splash-proof vents.

PRICE 6/6 each. Post 6d. Strong cases for above 9d. each. This cell will do 150 miles on a single charge.

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No. 19c.

4 volt. 10 amp.

Size, 3in. x 2in. x 6in.

Three plates per cell. Non-corrosive terminals. Splash-proof vents.

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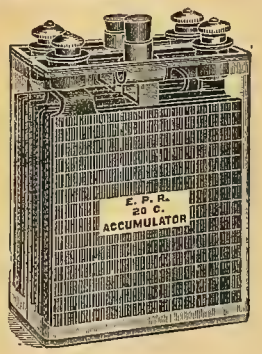
"E.P.R." No. 20c. 4 volt. 20 amp. Size 4in. x 2¾in. x 6in. Exactly as illustration. **PRICE 14/6.**



REPAIRS.—We make a speciality of treating old and damaged batteries. We can either repair and make them equal to new, or else allow their value in part exchange for new "E.P.R." cells. Send for new catalogue and terms.

NOTE.—All repair work guaranteed. Minerva accumulators cannot be repaired

Richford and Co.,

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153, FLEET STREET, E.C.

Established 1876.

MOTOR BICYCLES FOR SALE.

3 h.p. Triumph, excellent condition and running order; £20.—Merritt, Windermere, Blackheath Park, London.

5 h.p. Twin Antoine, perfect condition, powerful, fast, reliable, 2¼ Dunlops, exhaust lifter, horn, toolbag, Millennium carrier stand, extra pulley, and all spares; bargain, £19.—Withecomb, Disley, Cheshire.

5½ h.p. Rex de Luxe, 1907, twin wheel magneto, Brooks pan saddle, Roc clutch, not ridden 20 miles, guarantee; £30; too powerful; or will exchange for lower power. —Pratt, decorator, Tottenham Lane, Hornsey.

3½ h.p. Brown, magneto, new last June, only run 1,900 miles, faultless condition, plating and enamelling absolutely unscratched, easy starter, new Goodrich non-skid, acetylene searchlight, spares; genuine bargain, £28.—Herbert Dixon, Fern Lea, Northwich.

5 h.p. Twin Rex, magneto, spring forks, Goodrich studded tyres, excellent condition, marvellous offer, £22; first cheque secures; guaranteed in first-rate condition; will climb anything.—C. A. Hunter, 45, Park Street, Bristol.

ROC, 4 h.p., single-cylinder, 1907, two-speed gear, and clutch, magneto, handle-bar control, does 90 miles to the gallon, in splendid running order; trials by appointment; owner getting a twin; £36, or near it.—Apply, William Percy, 28, Lydon Road, Clapham, S.W.

4 h.p. Ormonde, Kelecom, 85 by 85, M.O.V., extra large flywheels, 2¼in. Dunlops, studded non-skid rear, adjustable pulley, **spring handle-bar**, Watawata and Gloria belts, handle-bar control, excellent condition; £17.—Apply, C.P., 199, High Street, Watford.

VINDEC, two-speed, 5 h.p., 1907, won two gold medals for hill-climbing, not run 2,000 miles, brand new belt and tyres, Riche's tubes, new G. lamp (cost 35s.), guaranteed in every respect; £45, cost £68, or exchange for 1908 Triumph and £6 cash.—Forster, Neville's Cross, Durham.

3½ h.p. Quadrant, 1906 pattern, but very little used, and as new, enamel and plating perfect, spring forks, tyres unscratched, very fast, and splendid hill-climber, with all spares, stand, etc.; price £20 no offers.—G.G., 34, Cambridge Place, Paddington, W.

5 h.p. Campion (1907), Peugeot twin engine, 26in. by 2in. Clincher tyres, accumulator, Longuemare, belt drive, aluminium finish, splendid condition too powerful for owner; cost £45, accept £22; complete with lamp, horn, stand, etc.; no offers.—George Ace, Ltd., Wind Street, Swansea.

FOR Sale, 3½ h.p. Brown, heavy Reflex-Clipper tyres, Watawata belt, horn, lamp, stand, two accumulators, spares, tools, etc., grand machine; genuine bargain to anyone requiring reliable and comfortable mount; photo sent; cash. £14 10s.—Butterfield, 22, Devonshire Road, Chorley.

TRIUMPH, 3½ h.p., 1908 model, almost new and unsoiled, has not done 700 miles, fitted with spring seat-pillar, non-skid on back wheel, horn, acetylene lamp, and all usual tools and spares, also new Clincher cover and new inner tube, in perfect order down to smallest detail; owner buying car, reason for selling; price £39 10s. — E. Kennard, Hinton St. George, Crewkerne, Somerset.

GREATEST Bargain Ever Offered!—Giving up motoring. 2¾ h.p. Stevens engine, Brooks saddle, Watawata belt, Bowden belt rim brake, spring forks, Clincher A Won tyres, new condition throughout, not ridden many miles; only wants seeing to ensure purchase, complete with electric horn, headlight, large Brooks toolbag, spare valves, etc.; £15 cash, no offers; a splendid goer, and genuine bargain.—Owen, fruiterer, Oakengates.

3½ h.p. Minerva, not ridden 50 miles, Osborne four-speed gear and free engine, new Whittle belt, front tyre Continental, back steel studded, tyres not been punctured, Montgomery sidecar, latest improved joints, large acetylene lamp, spare belt, inner tube, tyre, valves, sparking plug, two Hellesens dry batteries, one new, other hardly used; cost about £60, will sell £38.—W. E. Sorrell, 55, Topsfield Parade, Crouch End, N.

MOTOR BICYCLES FOR SALE.

5 h.p. Twin Rex, drop frame, very low, two-speed gear and free engine, Bosch magneto, spares, etc., enamel as new; £35. —Gilbert Spicer, Leamington.

2¾ h.p. Rover, Chater-Lea frame, footboards, very low and fast; £10, or offer; owner going abr. ad. — H. Wyatt, 11, Neal Street, Long Acre, W.C.

TRIUMPH, 3 h.p., magneto, Palmers, in splendid order and condition; only £19 10s., or will give machine and cash for good tricar or light car.—4, Frances Street, Woolwich.

1¾ h.p. Light F.N., April, 1908, very little ridden, spring forks, magneto, spring footrests, Xl'all saddle, lamp, horn, number plates, cyclometer, valves, etc., easy starter, can run very slowly, take 14 stone any ordinary hill; £28; cash wanted.—Can be seen at F.N. Agency, 106, Great Portland Street.

TRICARS FOR SALE.

6 h.p. Singer Tricar; £30; perfect order — 37, Newstead Road, Lee, Kent.

HALIFAX.—Twin-cylinder 8-10 h.p. Rexette, special car, two speeds, carry three anywhere; £47 10s.

HALIFAX.—4½ h.p. air-cooled Stevens tricar, 26 wheels, very low, tyres almost new; £19 10s. — Halifax Motor Exchange, Westgate, Halifax.

BAT, 6 h.p. twin Jap, spring frame; a real goer; £26, or offer.—140, Lewisham High Road, New Cross.

HORNER'S, Store Street.—Rex Litette for immediate delivery; get our cash quotation.

HORNER'S, Store Street.—3½ h.p. Rex tricar, two-speed gear, good going order; £13 13s.

HORNER'S, Store Street. — 5 h.p. Triette, good condition; accept £24, or exchange.

HORNER'S, **Store Street,** W.C.—Tricar frames, with hubs, handle-bar, plated and enamelled, complete, with forecar springs; £10.

£25.—Rex Triette, 5½ h.p., splendid running order and condition; any trial.—23, Fleet Street, Swindon.

HUMBER Tricar, 5 h.p., water-cooled engine, two-speed gear, splendid condition; £32.—Lycett, Burslem.

4½ h.p. Twin Minerva Tricar, perfect condition; best offer has it.—Sully and Co., 10, Old Town, Clapham.

TRICAR, two-speed, 4½ h.p., splendid condition, climb anything; £25.—57, Munster Road, Teddington, Middlesex.

3 h.p. Rex-Millford Light Tricar, B. and B. carburetter, Whittle's belt; what offers? —Ellis, New Street, Wellington, Salop.

h.p. Water-cooled Forman Tricar, Chater-Lea frame, wheel steering; offers wanted. — Sands, next George Inn, South Woodford.

CHEAPER, and more reliable and sociable than a tricar, my grand little three-speed Humberette; see Cars.—Beasley. Clapham

8 h.p. Twin-cylinder Semi-racing Tricar, new; money wanted; £22 10s.; no offers. —J. Derville, 73, Marion Road, Greyhound Lane, Streatham.

MINERVA, 3½ h.p., detachable forecar, Osborne gear, Brooks band, spares, good condition, ready for road; offers.—Sanderson, Chemist, Ramsgate.

QUADRANT Carette Tricar, 6 h.p., wheel steering, excellent condition, tools, spares, voltmeter, etc.; £40.—Dr. McNeil, Garstang, Lancashire.

TWIN Kerry-Abingdon Tricar, 5 h.p., two speeds, very fast, in splendid running order; trial; £26; owner bought car. — 125, Balham Hill, Balham, S.W.

COACH-BUILT Open Frame Tricar, 10-12 h.p., twin-cylinder, condition as new; £75; what offers in exchange —Motor, 6, Pierrepoint Road, Acton, W.

CLEMENT-GARRARD, three speeds, open frame, wheel steering, coach-built seats, bevel gear drive, Palmer tyres front, as new, non-skid back, very fast; £55, motor cycle in part payment.—Motorist, Rosemont, Cherryhinton Road, Cambridge.

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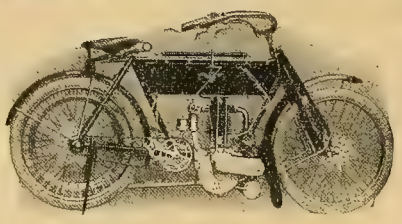
THE INVINCIBLE 'MATCHLESS' AGAIN FIRST!

Vide "THE MOTOR CYCLE" April 8th, 1908. "Le Grand, whose little 2¾ h.p. Matchless made a wonderful performance Its bore is only 70 mm., and the average bore in Class I. was 80 mm."



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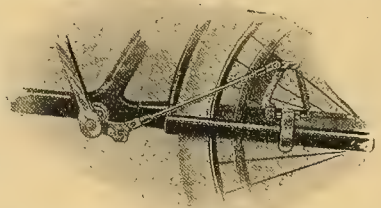
3½-4 h.p. single cylinder; 5-6 h.p., 7 & 9 h.p. twins



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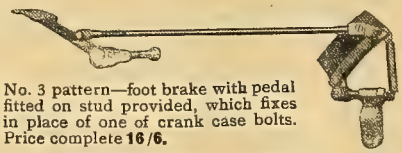
The first, and still the best driving rim brake. The only really satisfactory motor brake on the market. Made to suit any machine Absolutely reliable. No. 1 pattern—back pedalling brake. Machine can be wheeled backwards. Extremely powerful. Price **16/6.**

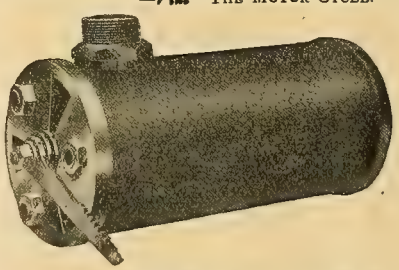
No. 2 pattern—footrest bracket complete. Price **£1 6s.** Footrests only Price **12/-** With either 1⅛in. or 1¼in clip.



No. 3 pattern—foot brake with pedal fitted on stud provided, which fixes in place of one of crank case bolts. Price complete **16/6.**

"MATCHLESS" SILENCER.

"COLLIER'S machine created great interest owing to the extraordinary silence of the exhaust. —*Vide* 'THE MOTOR CYCLE."



A silencer which really does silence the exhaust with absolutely no back pressure—certified by A.C.C. Silence Trials—at moderate price. Up to 3½ h.p **10/-**; from 3½ to 5 h.p. **12/-**. Cut out **5/-** extra. Two connections for twins with separate exhaust pipes, **4/-** extra. Connected in side or end, as ordered.

Catalogues of "Matchless" Motor Cycles and Accessories on application to

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TRICARS FOR SALE.

PHŒNIX Trimo, 4 h.p. Centaur engine, Phœnix two-speed gear, handle starting, fan-cooled, chain drive, any trial; £20. —Yarwood, Greenbank, Northwich.

LATEST 1908 5 h.p. Riley Tricar, steel-studded car tyre on back wheel, perfect, with all accessories; 65 guineas.—H., 35, East Street, Baker Street, London, W.

6 h.p., water-cooled, three brakes, belt drive, good order, £15; also Chapman two-speed and free engine, never fitted, £3.—139, Great College Street, Camden Town.

3½ to 4 h.p. Kerry Tricar, two speeds, free engine, in thorough good condition, fan-cooled; must sell, cash wanted; what offers.—80, Rectory Road, Fulham, London.

RILEY 6 h.p. 1907 pattern Tricar, water-cooled, three speeds and reverse; £65 paid, or exchange for 8-10 h.p. car. — Partridge, 56, South Side, Clapham Common, S.W.

4 h.p. Kelecom Tricar, fast, splendid climber, fitted electric light, Bowden control, good as new; £22, great bargain.—East Ham Garage Co., High Street South, East Ham.

5-6 h.p. Humber Tricar, two speeds, water-cooled, coach-built, perfect; 2¾-3 h.p. Kerry bike, replated, etc., low, reliable, fast.—Particulars, 91, Stanhope Gardens, Harringay.

LAGONDA Tricar, 10-12 h.p., water-cooled engine, three speeds, very fast on hills, excellent condition, all accessories; any trial; price £65.—The Western Motor Agency, Sidcup, S.E.

3½ h.p. Minerva, light, fast tricar, Chapman fan, exhaust lift, good climber, expert examination courted; £22 10s.; spares included.—"Pendine," St. Philip's Avenue, Worcester Park.

NEW Walco Tricar, 4 h.p., coach-built body, car tyre back wheel, Clinchers front; will take new bicycles of any good make in part payment.—Tom Norton, Llandrindod Wells.

6½ h.p. De Dion-King Tricar, perfect, powerful, fast, coach-built bucket seat, heavy car tyres, open frame, two speeds; £42, or nearest offer.—69, Loughborough Park, London, S.W.

6½ h.p. Humberette, cardan drive, two speeds and reverse, new Cape hood excellent condition, £36; large acetylene headlight, 30s.; Grack attachment, 5s.—140 Camberwell Grove, S.E.

PHŒNIX Trimo (genuine), Minerva engine two-speed gear, coach-built, new Dunlop front tyres, back fitted non-skid band lamps and tools; £27.—Blott, Eastbury Coombe Lane, Wimbledon.

PHŒNIX Tricar, 7-8 h.p. Peugeot twin two speeds, not run 1,000 miles, in perfect condition, as good as new, with accessories and spares; £65, genuine bargain.—J. Denyer, Meadsgate, Staines.

4½ h.p. Rover Tricar, wheel steering, free engine, two speeds, splendid condition, spare car tyre; £25; will take good motor cycle, or push cycles and cash.—Sellman, Mill Street, Cannock, Staffs.

MANCHESTER.—Tricar parts, 5½ h.p. engine, with Longuemare carburetter frame, with wheels, new tyre on back, two-speed gear and clutch; the lot £9.—A. Burton, 158, Chorlton Road, Manchester.

4½ h.p. Bradbury Tricar, w.c., two speeds 9in. clutch, coach-built forecar, two lamps, spare tyre; a bargain at £27 10s., or exchange for a good 3½ h.p. bike and cash adjustment.—Smith, 129, Western Road, Hove

LAGONDA, 10-12 h.p., water-cooled, just overhauled by makers; real reasons of selling given; photographs, or inspection by arrangement; cash offers only; no exchanges.—C. Gorham, Middle Pavement, Nottingham.

5½ h.p., twin-cylinder, open frame tricar two-speed gear, large clutch, bucket seat, everything good condition; £16; wanted, forecar to fit No. 6 Chater-Lea frame; part exchange.—Motor, 8, Spencer Road, Tottenham.

REXETTE, 8-10 h.p., seats three, two speeds, twin-cylinder, excellent order, all new tyres, newly painted, lamp, pump, spares, etc.; price £40 cash, or would exchange for 5½ h.p. latest pattern twin-cylinder motor cycle.—W. Pemberton, jun., Waterloo Works, Burnley.

CARS FOR SALE.

4½ h.p. Alldays Traveller, seats four; trial; £21.—190, Mellison Road, Tooting.

24-36 h.p. De Dietrich, tonneau, magneto, screen, hood; £165.—190, Mellison Road, Tooting.

35-50 h.p. De Dietrich, tonneau de luxe; cost £1,250 in 1905, £185.—190, Mellison Road, Tooting.

18-28 h.p. Gladiator, side entrance, long chassis, plate clutch; £165.—190, Mellison Road, Tooting.

12-16 h.p. Panhard, tonneau, four-cylinder, beautiful condition; £65.—190, Mellison Road, Tooting.

14-16 h.p. Daimler, side entrance, four-cylinder, perfect; £100.—190, Mellison Road, Tooting.

16-20 h.p. Corre, tonneau, four-cylinder, nearly new, similar Renault; £125.—190, Mellison Road, Tooting.

15 h.p. Darracq, 1905, tonneau, £125; 12-15 h.p. Forman, tonneau, £95.—190, Mellison Road, Tooting.

HUMBER Car, 6½ h.p., two-seater, splendid condition; £50.—Motor, 12a, Dee High Road, Lewisham.

5½ h.p. Humber, two speeds and reverse; bargain, £35 10s.—73, Church Street, Camberwell.

NEW 9 h.p. Chassis, equal artillery wheels, Dunlop tyres; great bargain, £47.—Motor, 79, George Lane, Catford.

6-8 h.p. Pick, two-seater, two speeds and reverse, splendid condition; bargain, £35 10s.—73, Church Street, Camberwell.

RYKNIELD, 12 h.p., two-cylinder, magneto, accumulator ignition, three speeds reverse, tonneau, excellent condition; £47 10s.—Below.

M.M.C., 7-9 h.p., two-cylinder, three speeds, reverse, swing seat side entrance, grand order; £42 10s.—41, Skelbrook Street, Wandsworth.

5 h.p. Dion W.C. Engined Car; £35; exchange for twin bike, magneto, or tricar, two speeds. — Reiffer, Hillmore Grove, Sydenham.

LLOYD, 24-30 h.p., tonneau, most reliable touring car; £95; accept tricar or motor cycle in part.—W. May, 20, Brunswick Square, S.E.

4 h.p. De Dion, two-seater, bonnet and radiator, sound and reliable, in first-class condition; £28, or near offer.—182, Broad Street, Coventry.

SMART 5½ h.p. Oldsmobile, seats three, two speeds, reverse, hood, lamps, spare tyre, good condition; £35, or exchange 6 h.p. Riley tricar.—Lawson, Burley Mount, Leeds.

SMART 6 h.p. Humber, three speeds, reverse, two-seater, splendid condition; £45, exchange powerful motor cycle. — Haigh, The Portlands, Lindley, Huddersfield.

6 h.p. Wolseley, two-seater, three speeds and reverse, brand new tyres (one non-skid) on back wheels, bucket seats, thorough order; photo; £60.—Gould, 10, High Road, Chiswick, W.

8 h.p. Darracq, seats four, option of two sets wheels, pneumatic or solids, in excellent order; a bargain at £60; four lamps, horn, tools, and spares. — Francis, 29, High Street, Runcorn.

OLDSMOBILE, 5½ h.p., two speeds and reverse, artillery wheels, Longuemare carburetter, four spare covers; £20, or reasonable offer; room wanted.—Bedwell, 54, Pier Avenue, Clacton-on-Sea.

6-8 h.p. Darracq, detachable tonneau, three speeds and reverse, £35; 12 h.p. M.M.C., three speeds and reverse, seats five, £35; 12-15 h.p. National, three cylinders, three speeds and reverse, like new, £85; Riley, Lagonda, or other powerful coach-built tricar taken in exchange for above.—Moore and Haigh, 63, Kirkstall Road, Leeds.

BENZ.—Choice of two, 4½ h.p., belt driven, three speeds, including Crypto, foot and hand brakes, solid tyres, one has Hewetson's Victoria body, with hood, seats two and child, other has International three-seated dogcart body, good reliable cars, climb practically anywhere; good trial; £10 each. — Thomas, Sandfield Road, Thornton Heath.

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We can supply all parts for 2¾ and 3½ h.p. F.N. Engines.

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"KUMFO" Sponge Rubber Grips, ⅞in. or 1in. bars, 2/6 per pair.

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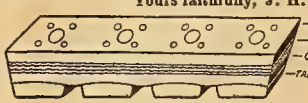
Dear Sir,—I am very pleased to inform you that the sample Centipede ¾in. belt you sent me gives every satisfaction. It is the best belt I ever used, and I'm no chicken in motor matters. It "grips" and is beautifully clean, practically free from stretch, very flexible, and my machine runs faster with it than ever before. Trusting you may have the success you deserve,

Yours faithfully, J. H. Wilkinson.



Price of Belt per foot:

⅝ 1/6. ¾ 1/9. ⅞ 2/-. 1 2/3. 1¼ 2/6.

Special Terms if desired—half the amount with order and the balance in three months if satisfactory.

POLLIN, BELT MAKER, SPALDING.

The "MABON" FREE ENGINE PULLEY AND CLUTCH.

No alterations required to fit.

Operated from handle-bar.

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STIRLING-PANHARD, 5 h.p., three speeds, reverse, pneumatics, running order; £17.—Buckingham, Coggeshall.

PHŒNIX Quadcar, two-cylinder Fafnir, 7 h.p., altered to seat two on back seat, front seat interchangeable with bonnet, tyres nearly new; £75.—Lacy, 12, Southwold Road, Clapton, N.E.

6 h.p. Regal Two-seated Car, De Dion engine, artillery wheels, two new covers (one non-skid), two Lucas acetylene lamps and generator, splendid running condition; £35, or exchange for Triumph motor cycle. —Guyver, Stratford-on-Avon.

12 h.p. Two-cylinder De Dion Pattern Car, two bucket seats, artillery wheels, 810 by 90 good tyres, three speeds, reverse, very fast, just overhauled, re-varnished, lamps, etc.; £50; good motor bike part.—H. Dixon, White Hart Hotel, Willesden.

15 h.p. Coventry Humber, fitted with Major Saul Samuel's screen and hood, accumulator (special Castle coil) and magneto ignition (Simms-Bosch), seats five comfortably, 815 by 105 tyres, lamps, etc., in excellent condition throughout; price £245. —56, *The Motor Cycle* Offices, Coventry.

TYPE de Course, latest model Rover car, 6 h.p., entered as test in London to Edinburgh 24 hrs. run, winning gold medal, now being returned to paintshop, any colour to suit purchaser, weighs 8 cwts., fitted with Kempshall tyres (unpunctured); price £120.—F. Dee, Grafton Road, Worthing.

I WILL Sell my 12-14 h.p. Dennis Car, aluminium tonneau, equal artillery wheels, cardan shaft, direct top, Dunlop tyres, all as new, two-cylinder governed engine, the car is in exceedingly good condition, and can be seen and tried any time; accept £58 to first comer, honestly worth more than double; must realise immediately. — 1,046, London Road, Derby.

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CYCLE Garage, 1s. 6d. weekly; tricars, 2s. 6d., with use engineer's tools, charging board.—Wood, 50, Victoria Road, Stroud Green Road.

BRIGHTON.—Black Lion Garage, back of Sea View Hotel, Black Lion Street, fifth turning from Aquarium on right, along front; specially for motor cyclists; repairs on Sunday.

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INSURANCE.—Please write for particulars of 30s. inclusive motor cycle policy.—Bass, Ongar.

HUGH J. BOSWELL, Insurance Broker, Norwich, issues all classes of policies for motor cycles at lowest possible rates; inclusive policy, 20s.; fire insurance only 2s. 6d. for £25, or 3s. 6d. for £35.—Write for particulars.

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ADVERTISER, with practical workshop experience, seeks position with motor cycle, or accessory firm.—Down, 2a, Angell Road, Brixton.

GENTLEMAN wishes to place his son in motor repairing works, holds drawing and theoretical arts, and has good knowledge of motors; must be within daily access of Balham.—18, Boundaries Mansions, Balham.

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FOR Sale, owner going abroad, low price for quick sale, motor and cycle business; latter can be discontinued if desired; old-established, on Brighton Road; lease contains valuable building extension agreement; certain opportunity. — Box 20, *The Motor Cycle* Offices, Coventry.

CYCLE and Cycle Accessory Depot in City, adjacent to Liverpool Street and Broad Street Railway Stations, with turnover of £2,000 per annum, for disposal; energetic man could increase to £3 000 per annum; price, including lease, fixtures, fittings, etc., £250; stock at valuation, or need not be taken over.—Particulars, Messrs. Beecroft, Sons, and Nicholson, 12, Wood Street, E.C.

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CELLULOID Accumulator Repair Outfits, useful for all celluloid repairs; full directions; post free, 1s. — Osborne Works, Forest Hill, London.

ACCUMULATORS.—8s. and your old accumulator secures a brand new Premier accumulator, fully guaranteed, not German trash.—Farrar, Square Road, Halifax.

ACCUMULATORS Repaired promptly, any make; reasonable charges, best work; estimates given; full value for your old accumulator in exchange for our new "Mayfair" accumulators; special 15 amp., 10s. 6d.; 20 amp., 15s.; guaranteed one year.—Fellows, 49, Hertford Street, Mayfair.

THE Famous Ajax Accumulator, absolutely the finest it is possible to make (see previous Nos. *The Motor Cycle*); 20 amp. size, 6½ by 2⅜ by 4¼, 17s. 6d.; any size to order in 36 hours; send for lists.—The Ajax Electrical Engineering Co., 291, High Road, Ilford, E.

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UNITO Cycle Coupling, for connecting any ordinary pedal cycle to motor cycle.

THE Unito connects the steering and ensures faultless alignment.

THE Unito is so constructed that side strain and lean of machines is entirely obviated.

THE Unito is adjustable to accommodate differences in wheelbase and wheel and frame dimensions.

DON'T Buy a Sidecar before you know the advantage of having a

UNITO Coupling. It only costs one guinea.—Write, Dept. B., Unito Coupling Co., Ystrad, Glam.

ARIEL Coupling; 30s. — W. Mansfield, 66, Beckenham Road, Penge, S.E.

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BOOTH.—Twin Antoine, new, £8 5s.; 5 h.p. water-cooled Antoine, new, £8 5s.; 6 h.p. Avon, water-cooled, M.O.V., £6 5s.

BOOTH.—2¾ h.p. Noble, £3 5s.; 2½ h.p. Jap, £3 5s.; 2¼ h.p. Noble, £2 2s. 6d.; 3 h.p. Rex, £3 5s.; 1½ h.p. Minerva set, tank, etc.; £3.

BOOTH.—Other engines taken in exchange. —Booth's Motor Exchange, Wade Street, Halifax.

2¾ h.p. Air-cooled Genuine De Dion, with spares, perfect; £3 15s.—Langlands, Clacton-on-Sea.

h.p. Simms Engine and Magneto, £3; 4 h.p. w.c. marine, £7; wanted, 6 h.p. a.c. —5, Gibbins Road, Selly Oak.

h.p. Whitley, with Bowden exhaust valve lift, Longuemare and silencer; £4. — Luther Cottage, Odd Down, Bath.

4½ h.p. Soncin Racing Engine, equal to new, very powerful; £5 10s.—Motor Accessories, Broad Street, Coventry.

GENUINE 2¾ h.p. De Dion Engine, water-cooled head, with carburetter, silencer, etc., as new; 5 guineas.—207, Peckham Rye, S.E.

2½-3 h.p. Fairy Engine Set, everything ready to fix to machine, not run over 200 miles; £7 10s.—Rossiter, South Road, Kingswood, Bristol.

2¾ h.p. Auto Engine, running order, new pulley; 50s., or nearest; exchange with cash for higher power.—White, Sawbridgeworth.

ENGINES.—Zedel, 2¾ h.p., £7 13s.; 3½ h.p., £9 0s. 10d.; 3½ h.p. twin, £10 0s. 7d.; 5½ h.p., £13 12s.—Rey, 5, Heath Street Motor Works, Hampstead.

OPPERMANN Two-speed and Free Engine, in perfect order, belt drive, 26in. wheel, fit any motor bike; £4 5s.—Loughlin, 4, Adys Lawn, St. Paul's Avenue, Cricklewood, N.W.

2¾ h.p. Engine, carburetter and silencer; can be seen driving forecar three up; very powerful as bike, excellent condition; owner having higher power; £3.—Polley, 71, Tooting Grove.

TYRES.

26 by 2½ Heavy Dunlop Cover, used, 7s. 6d.; 26 by 2¼ Peter-Union, new, 15s.—T. A. Morris, Bourne.

MOTOR Cycle Covers re-treaded, like new, 11s. 6d.—Ardea Company, 331a, King Street, Hammersmith.

"YOU DON'T BELIEVE US"

when we tell you our **"GLARE LAMP"** for Motor Cycles, etc., only uses ½-amp., and will run off your ignition cell, and yet **GIVE MORE LIGHT** than an Acetylene. Read what the famous Cyclist has to say about it:

"Messrs. J. W. Greenwood, Ltd.,
Portland Place Works, Halifax.

"Dear Sirs,—Some little time ago you supplied me with a Glare Motor Cycle Lamp. I am pleased to inform you that this has given every satisfaction, and has fulfilled all you state in your circular. I get a splendid light from it, and when correctly adjusted it is indeed an improvement on anything I have used previously. Your Patent Regulator is most useful, and when correctly adjusted the beam of light that can be obtained is very powerful. It uses a remarkably small quantity of electric current. I have already recommended this lamp to several of my friends, and feel sure before very long you will be having some good orders from this district. I have also found the lamp bracket simple and useful. Wishing you success with this valuable little line, I remain, yours faithfully, LUTHER MYERS, Bradford."

We are confident you will use no other kind when you have once tried one of these. Money refunded if not what we claim.

You will be well advised to have one or more of our **ADJUSTABLE LAMP BRACKETS** fitted, if you intend carrying Acetylene Lamps. Everything we sell we guarantee satisfaction. Have you one of our **ORIGINAL VARIABLE SPEED PULLEYS?**

J. W. GREENWOOD, Ltd., Portland Place Works,
HALIFAX.

THE REED SPEEDOMETER

(PATENTED).

This device is of the simplest description, being entirely free from all gear mechanism. The figures are ⅜in. deep, and are always quite distinct.

Fitted in a few minutes.
Requires no attention.
Cannot get out of order.

ACCURATE. LIGHT.
SIMPLE. CHEAP.

Weight, 3¾ ozs.
Price - - - - **5/6**

When ordering, please state size of wheel and size of hub.

THE SERVICE COMPANY, LTD.,
292, High Holborn, LONDON, W.C.

THE KENT THREE-SPEED GEAR.

This gear has been re-designed and improved. Can be fitted to Tricar in two hours. Price **£11 - 11 - 0.**
List Free. Discount to Trade.

RODGERS BROS.,
330, Kennington Road, S.E.
'Phone: 1009 Hop.

TYRES.

BOOTH.—Peter-Unions, 24 by 2½, 28 by 2¼, 15s. 6d.; Royalty covers, 26 by 2, 12s. 6d.; 2¼, 13s. 6d.

BOOTH.—Ten shillings allowed for old cover in exchange for Shamrocks, Palmers, Goodrich's.

BOOTH.—Tyres, best make, 26 by 2, 16s.; 2¼, 17s. 6d.; 2½, 21s.; 28 by 2, 16s. 6d.

BOOTH.—Best Tubes, 26 by 2, 7s.; 2¼, 7s. 6d.; 2½in., 8s. 6d.; 28 by 2, 7s. 6d.

BOOTH.—All tyres sent on approval. — Booth's Motor Exchange, Wade Street, Halifax.

MOTOR Cycle Covers, beaded and wired-on, 15s. each; 24 by 2¼, 26 by 2in., 26 by 2¼, 26 by 2½ 28 by 2½, all guaranteed.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

COVERS.—Strong beaded, ribbed tread, 26 by 2, 17s.; 26 by 2¼, 18s.; 26 by 2½, 19s. 6d.; 28 by 2, 18s. 6d.; carriage paid.—Below.

5S. Allowed for your old cover in exchange for genuine Continentals.—Para Rubber Co., 93, John Bright Street, Birmingham.

FARRAR.—New inner tubes, fully guaranteed, not porous rubbish; 26 by 2, 7s.; 26 by 2¼, 7s. 6d.; 28 by 2, 7s. 6d.

FARRAR.—Tyres, fully guaranteed; 26 by 2, 16s.; 26 by 2¼, 17s. 6d.; 28 by 2, 16s. 6d.; 24in. same price.

FARRAR.—Tremendous stock Continental tyres; your old tyre accepted in exchange; list free.—Farrar, Square Road, Halifax.

CLINCHER A Won Brand New Covers, 26 by 2, 19s. 6d.; 26 by 2¼, 21s.; also extra heavy 26 by 2 ditto, 21s.; order at once; only a limited quantity; prices are below usual trade prices; approval.—Lomax Tyre Co., Great Charles Street, Birmingham.

MAUDE'S.—Fully guaranteed tubes, 26 by 2in., 6s.; 2¼in., 7s.; 2½in., 8s.; 28 by 2, 7s.; 2¼, 7s. 6d.; 2½in., 8s.; approval willingly.

MAUDE'S.—Covers, 26 by 2in., 16s.; 2¼, 17s. 6d.; 28 by 2in., 17s.; 2¼in., 18s.—Maude's, Powell Street, Halifax.

HALIFAX.—Brand new inner tubes, best make, 26 by 2, 6s. 6d.; 26 by 2¼, 7s.; 28 by 2, 7s.; 28 by 2¼, 7s. 6d.; 28 by 2½, 8s. 6d.; genuine Calmon covers, with non-slipping tread, 26 by 2¼, 15s. 9d.; 28 by 2, 15s. 9d.; 28 by 2¼, 16s. 9d.; 28 by 2½, 20s. 6d.; all beaded edge. —Halifax Motor Exchange, Westgate, Halifax.

REPAIRERS.

IRIDIUM Champion "Indestructible" Contacts; any part fitted, returned same day; 3d. each.

IRIDIUM Champion "Indestructible" Contacts; warranted pure; special trimmers for polishing iridium, 9d.; no filing required.

IRIDIUM Champion "Indestructible" Contacts; hundreds in use.—Williams, 16, Wellington Street, Woolwich.

£5 any motor cycle we cannot repair. — Whites, 22, Brookes Street, Church Street, Liverpool.

LIVERPOOL.—£5 any motor cycle we cannot repair.—Whites, 22, Brooks Alley, Church Street.

REPAIRS and Replacements of every description to motor cycles.—Campbell, 156, Wirtemberg Street, Clapham.

GRIFFIN and Sleat, Eastbourne.—Cylinders re-bored and new pistons fitted, or engine completely overhauled; let us quote you.

RELIABLE Repairs.—Complete pistons from 6s.; re-boring, new pistons, from 12s. 6d.—Gas Engine and Motor Works, Forest Hill, S.E.

PAIR Brass Side Lamps, 10s.; aluminium enclosed fan, 7s. 6d.; Micrometer motor free-wheel, 4s. 6d. — A., 8, Herndon Road, Wandsworth.

LEICESTER and County riders should look up the Central Motor Co., Langton Street, Belgrave Gate, Leicester, for repairs, tyres, accessories, and accumulator charging.

CCCCCCCCC Compression means power. — Cylinders re-bored and new pistons fitted; guaranteed fit 4-1,000in.; bears 13 stone on pedal; write for list.—Gradior Machine Co., Compression Specialists, Stafford.

THE MOTOR CYCLE

Vol. 6. No. 274 June 24, 1908.

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Riding Position.

POSITION is everything. So reads a well worn phrase, but not too threadbare, we hope, to allow us to quote it once in connection with motor cycles and their riders. Motor cyclists can assume a position that is graceful or hideous, according to the design of the machine they ride and their own inclinations. First a motor cycle saddle is, or should be, near to the ground in comparison with a pedal cycle saddle. This causes the rider's knees to be tucked up into his chin if he is foolish enough to ride a machine that is not provided with footrests, so the moral is to have footrests, and have them sufficiently far away from the seat to enable the legs to be comfortably extended without causing them to be stretched. Some riders say, "Pedals for me, no footrests. I can stand on one or both of the former when passing over a bad road, use my knee flexion as a spring, and therefore require no spring frame." This is true enough, but why not the footrests for comfort and the pedals for bad roads? One does not always ride on apologies for macadam. Having settled the footrest position, the next thing is the handle-bar position. A motor cyclist does not require a crouching position, therefore the handles must be upturned. The rider requires to sit some inches behind a vertical line drawn through the pedal crank axle bracket, so that the handles must be brought well back, but the bars must not be level with the horizontally extended thighs when pedalling, or the machine would be difficult to turn sharply. To overcome this objection the handles should be bent upwards to enable the two ends to swing over the tops of the thighs, and yet not too long so that they dig into one's ribs if a sudden turn is necessary. A few machines are ideal as regards a comfortable riding position when handle-bar and saddle are once adjusted to suit the rider, but there remain quantities that could be vastly improved in this direction, both new and old. When every maker of a motor cycle is a long distance rider—not a rider who takes the machine out for half a mile on wood pavement to see if the engine fires all right—these and similarly simple matters of design will be quickly righted.

"Popping."

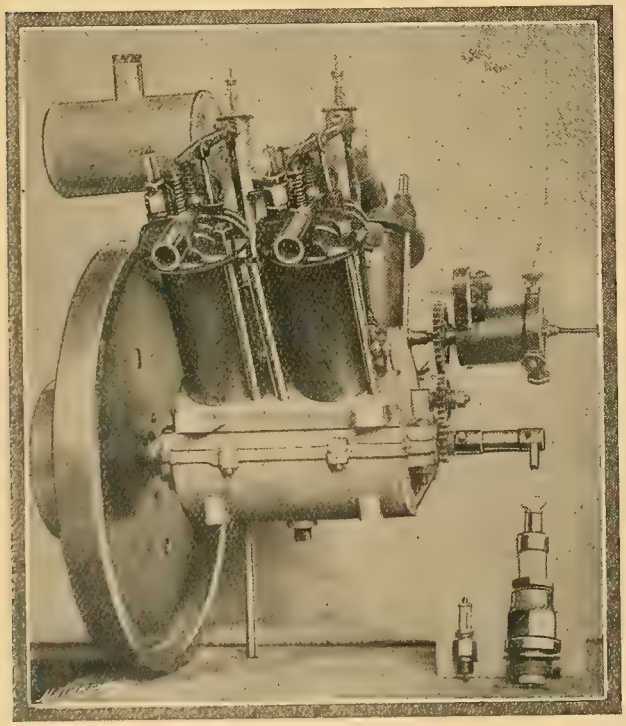
WE should like to ask motor cyclists who have engines addicted to "popping," or exploding in the silencer, if they have ever asked themselves what is the cause of this most objectionable feature. All engines will do it, some makes noticeably more frequently than others, and the nuisance is not confined to motor cycle engines. We know of a particular make of car engine that will "pop" in the silencer the moment the accelerator pedal is released, which action on a motor cycle is equivalent to closing the throttle. This engine has a so-called automatic carburetter, and when the throttle is closed the air is not cut off in proportion, and the mixture being too weak to fire regularly every fourth stroke, every other charge is pumped into the silencer and there ignited by the succeeding burning gases which enter the silencer in the form of a hot flame that would set fire to anything short of asbestos.

This is one cause of "popping." Another is one which cannot happen unless the engine is provided with an exhaust valve lifter. In the second case the lifter is raised, gas is travelling along the induction pipe, and its flow does not positively stop immediately the valve is raised; consequently the next few induction

strokes draw in a small amount of gas which is pumped into the silencer, and if the valve is dropped before this unburnt gas has time to become completely expelled from the silencer, the next explosion sets fire to it, and there is a horrible "pop" in the silencer. Now, from experience we have gained with practically every well-known make of motor cycle, in some cases it is possible to prevent it. On one or two makes it practically never occurs unless the rider is driving with too rich a mixture, or an imperfect mixture; on others it is next to impossible to prevent it. Cool or hot, some engines will explode in the silencer, and it is time the actual cause or causes were generally known and corrected. It is a fact that on an otherwise perfect engine it is possible for "popping" to take place and for the cause not to be known with absolute certainty. It is possible to take an engine and make it "pop" and then adjust it so that it does not do it, but that is not our point. We want to see it prevented on every engine, as it does not invariably arise from faulty manipulation. Experienced drivers of both motor cycles and cars have told us that they have not always known what was causing explosions in the silencer, or they would have been only too pleased to remedy matters. Motor cycle engines are worst in this respect, because they are almost without exception controlled by a valve lifter, and nothing is more calculated to give a bad impression than to see a motor cyclist passing through a crowded street with the engine giving out frightful bangs every few yards. The public think that such methods of propulsion—or should we say retardation?—are the usual accompaniments of the motor cyclist on tour, much as they thought vibration was ever present because they saw a motor cycle bounding from one rock to the other of their badly macadamised suburban roads, forgetting that their daily milk is nearly churned into butter by the same process, and that smoother surfaces do exist even if they have never seen or ridden on them. This "popping" must be overcome, and as difficulties exist only to be won over, we trust makers will at once turn their attention to preventing it.

A Miniature Four-cylinder Engine.

WE have received a photograph of a most ingenious little four-cylinder engine of the V type, the work of a garage mechanic in the North London district. It is air-cooled, and develops about 1.25 h.p. at 1,300 revolutions per minute. Some idea of the size of the engine can be gathered when we say that the cylinders of the motor were made from 1¼in. steel tubing, and its total weight, as per illustration, only 8 lbs.! The owner, Mr. D. Stanger, 6, Hale Road, Tottenham, cast and machined the parts himself, or got them done to his drawings. He claims it to be the smallest working air-cooled petrol engine in the world, and we ourselves do not think any of our many thousand readers will be able to go one better. The engine under notice is being used for experimental aeroplane work, and has been found to drive a 2ft. propeller (2ft. pitch) quite easily. The ignition is very ingenious; the maker had to construct his own contact-breaker, sparking plugs, distributer, and single coil. The size of a normal sparking plug by the side of one of the specially made plugs for the engine gives an idea of its midget proportions. It is without doubt a very interesting example of painstaking and thorough workmanship.



A four-cylinder engine weighing complete only 8 lbs.

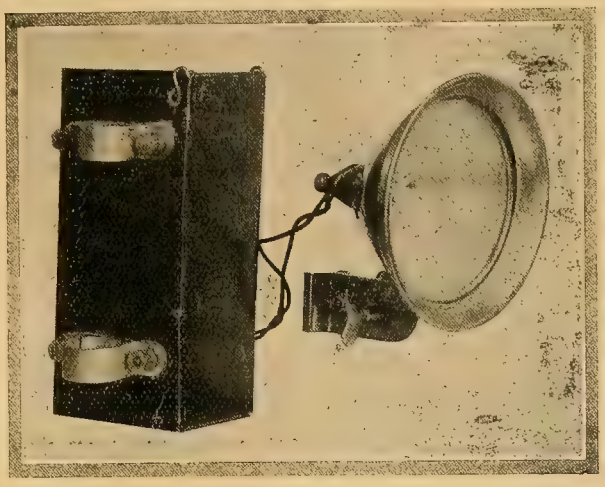
We are indebted to Mr. B. Richardson Billings, a previous contributor to these pages, for bringing this engine to our notice.

In order to meet the increasing requirements of West End patrons, Messrs. Harvey Frost and Co., Ltd., have considerably extended their premises at 27, Charing Cross Road, where a big stock of H.F. vulcanising materials and tools, and also H.F. vulcanisers, is now installed. Every requirement, therefore, can now be promptly met at the firm's West End address. Any reader desiring a free demonstration on an H.F. appliance can easily obtain same by calling, or through the medium of an introduction card obtainable at most motor depots in London and the provinces.

We have received from Maude's Motor Mart, Powell Street, Halifax, a spare air tube carrier in the shape of a round metal box. Provided the air tube fits the case tightly, it should be a very good means of carrying a spare tube, but if it is at all loose in the box some protection should be provided in the form of a flannel or baize lining, otherwise vibration will cause the edges of the air tube to be chafed until the tube is spoiled. It is a common mistake to carry an air tube on tour without careful packing, and to find at the end of five hundred miles riding that the edges are chafed through and the tube rendered useless. In future, acting on a suggestion we have made, these carriers will be lined with soft baize without extra charge. The tube should also be well coated with French chalk.

THE GLARE HEAD LAMP.

WE have recently been trying one of the small Glare electric head lamps with four-volt accumulator in metal box. This lamp is made and sold by J. W. Greenwood, Ltd., Portland Place Works, Halifax. The metal battery box is provided with clips to attach it to the seat tube of a motor cycle or to any other convenient tube where it can be carried in an upright position. The interior of the box is lined with indiarubber sheeting, and the accumulator supplied fits it perfectly. We find that the lamp gives considerably more light than one would expect from a small four-volt bulb, and it is a handy lamp to have on a machine when a light is required at frequent intervals for a short run. For instance, medical men find these lamps useful, as the light can be switched on immediately when it is necessary to answer an urgent call. We found that the strength of the light depended on the way in which the bulb was adjusted in the lamp, and as the Glare has a means of adjusting the bulb nearer to and further from the reflector, one can so adjust the position that the very best light is obtained. In the case of accumulator ignited engines, the bulb can, of course, be lighted from the ignition battery, but the special battery and case are essential in the case of motor cycles equipped with a magneto.



SIDECARS AND 3½ h.p. MACHINES.

THERE seems to be a good deal of misconception as to what a good 3½ h.p. motor bicycle will and will not do when attached to a sidecar. Some riders say a motor bicycle minus a two-speed gear is useless with a passenger attachment. This statement, of course, is far too sweeping, for many motor cyclists will recall pleasant trips two or three years ago with sidecars on 3 h.p. bicycles, which were at that time most common. With the primary object of making experiments for the benefit of our readers, we obtained a Montgomery flexible sidecar attachment some weeks ago, and fitted it to a 3½ h.p. motor bicycle in our possession. We may say at once that our experiences have been entirely satisfactory up to the present, after having covered several hundred miles. One reason why the Montgomery sidecar appealed to us was on account of its instant detachability—a great point, as in our case as much riding is done alone as with a passenger. With only a 3½ h.p. engine, naturally there is little or no reserve of power on hills, but with a combined weight of 19 stones and a gear of 5 to 1 we can cover long stretches without the slightest hitch, and climb all ordinary hills—say, up to 1 in 15—and rush short hills of about 1 in 9 or 10 without using the pedals. When considering the question of fitting a sidecar attachment, the questions resolve themselves to the following:

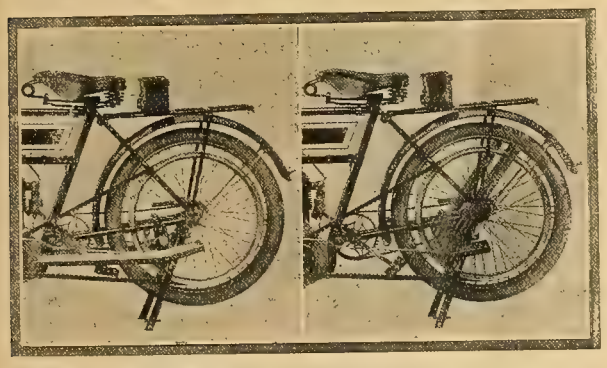
(1.) Is the district to be ridden in most a very hilly one?

(2.) Do the driver's and passenger's combined weights exceed 20 stones?

(3.) Is the 3½ h.p. of the bicycle to be used over-rated by the makers?

If all the above questions can be answered in the negative, we can assure our readers the purchase of a sidecar will be a distinct success, as quite long distances can be covered without any physical exertion whatsoever. Judicious driving, however, is necessary at all times to keep the engine from overheating when a severe rise is encountered, and the oil pump should never be forgotten! The greatest strain is naturally on the transmission and the back cover, so spares of each should be carried on a tour. The bicycle we are using with the Montgomery sidecar is a 3½ h.p. 84 mm. × 86 mm. Triumph, and we have still to record our first involuntary stop from any cause whatever. The steering is not at all difficult; almost any cyclist can steer the combination at the first attempt, there being only a slight pull on whichever side the attachment is fixed.

It is almost superfluous to add that a reliable change speed gear would be a boon, but it is not an absolutely indispensable fitment. Two years ago the writer used a Montgomery sidecar, while last year he owned a tricar, and on returning to the sidecar again he is convinced that for comfort, sociability, reliability, handiness, ease of storing, and low cost of running it will take a lot of beating. It may be mentioned that the average consumption in a fairly level district is in the neighbourhood of eighty miles to the gallon.



Folding footboards supplied by the Premier Motor Co., Ltd., to Mr. J. Leno, son of the late Dan Leno. When it is desired to use the pedals, the footboards can be set up out of the way.

A TRIAL OF A TWIN REX.

By B. H. DAVIES.

"TRIAL" is a word of ever-changing meaning to the motor cyclist. Time was when it meant to me a cautious gambol round Hyde Park previous to a rash purchase. Then the hill-climbing bugbear loomed larger, and I felt no trial was complete that did not include the ascent of Westerham. Then racing theory infected me, and my trials took the form of an early morning run at double legal limit, and as prolonged as might be. Then, again, I learnt with some machines to use the word trial in a purely scriptural sense; it *is* a very real trial to travel even a few miles on some machines. But to-day, when practically every machine is speedy, a good hill-climber and reliable, "trial" has been narrowed down in meaning till for me it scarcely includes more than tests of comfort, control, and especially FLEXIBILITY (capitals, please), the old trio of desiderata—reliability, speed, and hill-climbing—being taken for granted.

It Rose Nobly to the Occasion.

However, the other day, when Mr. Williamson put a 5 h.p. Rex Tourist at my disposal, circumstances allowed very complete tests to be made, covering some 250 miles. The machine was the special hill-climbing model, with ball bearing engine, but minus the Rex cantilever seat and the free engine. I trusted myself to the machine in the most childlike fashion, taking it out with no stand, no pump, no repair outfit, no tool kit, no spare sparking plug—in fact, in approved mechanic fashion, with no other outfit than a small King Dick spanner and a screwdriver—and it rose nobly to the occasion, covering the distance with one involuntary stop, due to the stripping of a nut on the saddle clip. Thus the machine proved its reliability. Its illuminated certificate did not err on the side of generosity, for it only certified forty miles an hour, and it would do that comfortably with the throttle only a quarter open, while with a more liberal supply of gas it would romp up all grades up to one in ten without the faintest diminution of speed. Thus the machine proved its speed and hill-climbing powers; in fact, one of my tests was a forty mile spin at a secluded hour, to test it for overheating, and except at corners it was given its head the whole way, plus a charge of Wilburine every five miles, and it finished almost as cool as the proverbial cucumber. This left me with comfort, control, and flexibility to test the machine for. The comfort was frankly disappointing, as the springs of the front fork were decidedly too stiff for my weight, and, in addition, when Nature designed my legs, she had not foreseen that I should ever ride a 20in. frame. I felt in momentary danger of being forced out over the back mudguard by the heavy wind pressure whenever I let the machine out; however, it is well understood that this is the speed merchant's Rex. He who would potter in comfort is meant to ride the heavier mount with the cantilever seat.

A Perfect Control.

The control was admirable. Belt rim brakes destroy the necessity for a second brake, and so it never occurred to me to try the hand brake at all. The levers were all delicate in adjustment, easy to handle, and as firm as St. Michael's Mount or the Eddystone, when they were set at any point. Steering with my left hand almost exclusively, I found it awkward to have both devices for stopping the engine on the right grip, so I soon transferred the switch—a most cosy and ingenious little fitment—to the left grip, and the control was then ideal.

But it was in my third desideratum of flexibility that I was most delighted with the machine. Other machines have ball bearings to the mainshaft; the Rex has ball bearings to the connecting rods, and as a consequence I am fain to admit I never drove an engine that would pick up with such smooth celerity. Time and again I slowed right down to the balancing point to thread my way through a drove of cows, until the front wheel had to be waggled violently right and left to maintain any equilibrium. A hasty reach forward to the spark advance, a lightning dab at the throttle lever, and anon a more leisurely opening of the extra air, and the rear wheel was felt positively snatching at the roadway beneath one, until in a hundred yards or so it was roaring on at a smooth forty, and albeit taking it so quietly that the pace would never be realised but for the telltale watch on the bar and the frequent milestones bobbing up, curtseying, and vanishing aft. This facility of picking up led me to make some cruel tests on a hill. I first of all ran it as hot as I could—which was not very sultry, when all is said and done. Then I charged a long hill at full steam, and gradually slowed down to a crawl on a stiffish knuckle, until the road speed was too slow for the maximum retard of the ignition, and signs of approaching knock were discernible. Then the throttle was slashed open, the spark ruthlessly dashed forward, and the engine gathered furious pace with a calm, masterful rush, devoid of jerk. The unfortunate wheel and tyre were unequal to its snatch, and I felt the wheel leap and hammer beneath me, but the smooth acceleration of the engine was resistless, and ere the crown of the ascent was reached the machine was tearing up like a Great Western express.

I returned the machine with strong envy of the lucky owner who was to receive delivery of it that week.

"Ixion" sends us the annexed photograph, which has been sent him by a correspondent who prefers to remain anonymous. He says: "The photograph is of my brother's 3 h.p. Fafnir cylinder. He was riding it in town the other day, when it stopped with a crash. On dismounting and looking at his engine he saw the hole as shown. At night we took it to pieces, and found connecting rod doubled up and half the piston broken in small pieces, but the top half above the gudgeon pin with the three rings on in good condition. The gudgeon pin had gone clean through the cylinder, and not cracked it at all. **He had no** set screws in the piston, as he took them out last year. I forgot to mention he looked all round for the piece of cylinder or gudgeon pin, but he never found it."

MOTOR CYCLING IN INDIA.

A VERY pleasant motor cycle gymkhana was held under the auspices of the Deccan Motor C.C., Poona, India. The run was to Katrag, eleven miles out of Poona, and the following riders entered for the run and the hill-climb, extending over two miles:

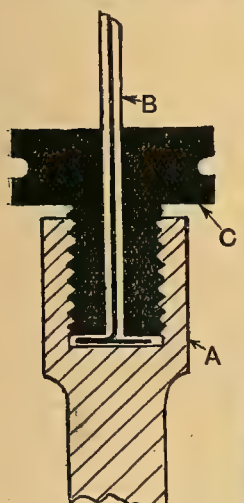
W. Janet (4½ h.p. Minerva), Capt. Cotter (2¾ h.p. Quadrant), Lieut. Barker (3½ h.p. Riley), Pat Stewart (3½ h.p. Triumph), E. Duckett (4½ h.p. F.N.), R. Mody (2¾ h.p. Hobart), Sirdar Blingwantra (2½ h.p. Triumph), W. Gillard (3½ h.p. Triumph), and H. Ruston (3 h.p. Peugeot).

The run was most successful. As a result of the handicap the result worked out as follows: 1, W. Janet (4½ h.p. Minerva), 40s. start; 2, R. Mody (2¾ h.p. Hobart), 155s. start.

Motor cycling is increasing in popularity in India, writes our Poona correspondent. The riders depicted above competed in a most successful gymkhana at Poona last month.

A NON-CORROSIVE ACCUMULATOR TERMINAL.

AN exceedingly neat form of terminal has been placed on the market by the Non-corrosive Terminal Co., 13, Grape Street, Oxford Street, W. Referring to the line illustration, which is a section, it will be seen that the terminal consists of a hard lead cup A, a portion of which is threaded to receive the celluloid stopper C, through which the insulating conductor B passes. The end of the wire B is burred over, and when the stopper is screwed up it makes a firm contact against the bottom of the cup. The end of the cup makes contact with the lug connecting up the plates. The accompanying photograph shows the terminals fitted to a Peto and Radford accumulator. It is obvious that no acid can reach the naked portion of the wire, so that the title non-corrosive is one to which the device has an incontestable right.



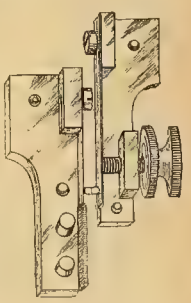
Vertical section of lead and celluloid terminal.

A. Hard lead cup.
B. Insulated wire from coil.
C. Celluloid stopper which holds the splayed ends of the conducting wires against the floor of the cup.

The Non-corrosive Terminals fitted to a Peto and Radford Accumulator.

A NEW TYPE OF TREMBLER.

ON the trembler which forms the subject of the annexed sketch the usual vertical position has been changed to a horizontal one. The two projecting pieces on the left, being in connection with the core, attract the left-hand blade. This latter has a platinum contact which makes and breaks on the second platinum contact fitted in the right-hand blade. The platinums are always in view, and can be adjusted exactly opposite each other with the greatest ease, the movement is extremely rapid, and the adjusting screw has no platinum on it at all, and simply serves to adjust the speed of the trembler. It is claimed this coil takes very little current indeed. It is made in single-cylinder and twin-cylinder patterns by W. and R. Jacobs, 39c, King William Streeet, E.C.



Readers will be interested to hear that Mr. Cook, the winner of the first motor cycle race at Brooklands, uses a Duco Flex belt on his 7 h.p. N.L.G. Few belts will stand the strain of a 7 h.p. engine.

A YORKSHIRE LEGEND.

The firelight glints in eager eyes,
In the inglenook; and like a book,
With every look of candour frank,
The old man spreads himself, and lies
Of things oft-told: of buried gold;
How Edwin bold was badly sold
In days of old, on Sutton Bank.

* * * *

Angeline was a maiden fair,
Fascinating purple eyes and hair.
She was Edwin's—temporary—joy.
Edwin was—pro tem.—her darling boy.

Angeline went one week in May
To her aunt in Helmsley; and a day
Later came a wire from Edwin: "I'm
Motor cycling down, arriving nine."

* * * *

'Twas nearly nine o'clock
And Thirsk was at his back,
When Edwin got a shock;
The engine gave a knock
In sympathy.
Before him Sutton Bank
Upreared. His cardiac
Proportionately sank
As, steeply up its flank,
A dim path he
Discerned, gyrating high
To distant regions; where,
Beyond the eastern sky,
The Land of Bye-and-bye,
Wept Angeline.

"May I misfire before
I fail my tryst with her!"
Across the bridge he tore,
Shouting "Excelsior!"
To his machine.

Three times he stormed the hill,
Before he passed the "trough."
Three times again, until
He got a frightful spill
At Big Tree Bend.

"No beastly 'one in four'
Is going to shunt me off
From her whom I adore.
This struggle must," he swore,
"In victory end."

A window far on high,
Beneath the hill's black brow,
Mirrored the sunset sky,
And gleamed, a bloodshot eye,
In angry frown.

Young Edwin frowned as black,
And quoted "Do it now."
He tried six times; alack!
Six times he turned him back
The hill adown.

Then, more or less insane,
He turned, a thirteenth time,
Machine and self again
To face those hairpins twain
Of Sutton Bank.

With scarce a slackened wheel
Beyond the "trough" they climb;
Now round the corner reel;
Then, as the steep they feel,
Hope-lingering-sank!

Then cried he in his need,
"To pass that second bend
I'd sell my soul." "*Agreed!*"
The motor picked up speed
And snorted loud.

AGREED! What did it mean?
Or did his fancy lend
Voice to some Thing unseen,
That shadowed his machine,
And mocked and mowed?

Or was it—horror dread—
It was! . . . His heart stood still.
Upon the engine head
He saw an imp, who said,
With thumb to nose,

"AGREED! Observe we flash,
Like petrol flame, uphill—
Now round the corner dash,
And now—O Edwin rash—
Your bargain close!"

* * * *

And now, they say,
Each year in May,
A spectral motor climbs the Bank
With glowing cylinder and tank
And clears the bends—
But there it ends,
And vanishes afire!

For Edwin sold his soul to round
That second bend, before he found
'Twas all in vain
He'd ne'er attain
The TOP: *'twas some yards higher!*

H. R. T.

MOTOR CYCLING FOR HEALTH.

(*Concluded from page 479.*)

J. H. Fergurson, M.R.C.S. Lond., L.R.C.P. Lond.

(1.) In my experience motor cycling is a healthy and pleasant pastime. (2.) The motor cycle is a most useful and time-saving invention. (3.) Half. (4.) A good 4-5 h.p. single-cylinder tricar, two-speed gear, and arranged so as to protect rider from mud splashing in sloppy weather. My mount is a 3 h.p. Centaur (three-wheeler) with a Phelon and Moore two-speed gear, which in my experience leaves nothing further to be desired. I have had the combination over four years in daily use, and in all kinds of weather. I have ordered a 5 h.p. Centaur tricar, as the hills in this district (Keighley) are severe.

Dr. Bletsoe.

Charles Patterson, M.B., M.R.C.S.

Have used a motor bicycle for four years in my practice and average 10,000 miles a year over hilly country. As regards my own health, I have never been better, and despite the fact that there are no spring forks or saddle-pillar fitted to my four-year old single speed machine, the vibration (the bogey of motor cycling) over our bad roads has neither unsteadied my hand nor shaken my nerves. I could write from now to next year giving instances where the motor cycle, and the motor cycle alone, has made the difference to the ultimate recovery of serious cases. A motor cycle always ready day and night in the stable makes a country doctor as much on the spot in a district of seven miles radius as his town brother who comes one mile all round on foot. I have for the last two winters driven a 10 h.p. single-cylinder car. It costs me over £120 a year. When I used a motor cycle alone (2½ years) the expense worked out at £33 per annum, which includes a bill of £8 for charging accumulators as I live nine miles from a charging station. The motor cycle for a hilly country and for a heavy man should be 3½ h.p. single-cylinder, belt drive (rubber), with adjustable pulley, two speeds (absolutely essential), preferably epicyclic in hub, pedals, non-skid tyres, and detachable tubes, the whole as light as possible. For four years I have used Palmer tyres, and only once had a side-slip (on ice coming down 1 in 9 on frozen snow).

G. Percival Adamson, B.A., M.B.

As a pioneer, my motor cycling dates back to De Dion tricycle days, followed by several years of tricar life. During that time I enjoyed excellent health through all conditions of weather. With regard to utility, this is where the motor cycle scores—it is convenient to handle, store, clean, move in and out of garage, is speedy and reliable. The cost, as far as general professional expense is concerned, is negligible. In my case a tricar displaced two horses, and the man was left at home at more productive work than sitting still.

Dr. Percival Adamson.

OCCASIONAL COMMENTS.

By "IXION."

Front Wheel Stands.

I have had several letters *re* front wheel stands to assist in wheel adjustment, replacing the inner tubes after repairing punctures, etc. If an extra carrier is not desired, it seems to me that the best device is a stumpy hinged support under the front of the engine crank case, on the lines of that brought out by the Bat people in 1902. One sidecar enthusiast has shown me a small solid wood block, which forms a cradle for his crank case, but while light in weight it is too bulky for a solo mount. A long distance tourist has sent me drawings of a combined front wheel stand and carrier; he fitted an extra long front wheel spindle, and fitted an adapted Main-Hilton stand carrier to it; and, finally, I have had a telescopic stand submitted which I have asked my editor to illustrate as soon as it is perfected. The point is that every rider should be able to procure a front wheel stand from stock to fit his machine, instead of, as at present, having to get one specially made.

Tyres.

I have just been examining a tyre which has run for two whole years on the front wheel of a twin Vindec without being removed and without puncture, and it is to all appearance still good for many a mile. If the tyre companies can produce a front wheel tyre which so largely exceeds the standard of our necessary requirements, it is the greatest pity that some of them cannot turn out a rear wheel tyre which will in ordinary circumstances go through, at any rate, one year of, say, 5,000 to 7,000 miles without wearing down to the fabric, bursting, or puncturing. We shall see about eighty riders start from Land's End for a 900 miles jaunt in July, and not one of them will have any real expectation of getting through without a puncture. In 1906 several men had upwards of a dozen, though starting with new tyres. The tyre companies refuse to understand that the amateur buyer controls the tyre demand. They think they must listen to the manufacturer's buyer. They show him a nice sensible cover of big cross section with 3/8in. of material (I dare not always say "rubber") on the tread. "A beautiful tyre!" he ejaculates. "But, my dear sir, it is too puddingy for words! Do you think our customers could win hill-climbs with a tyre like that? We want something narrow and light and resilient and cheap. If we fit a 50s. cover to the rear wheel, we shall have to put our prices up, and then we shall be undersold!" So the tyre makers scrap the beautiful reliable sample, and sell him a couple of thousand of light sprint tyres about as sound for road work as single tube Constrictors would be sound for a retired 16 stone colonel's pedal tricycle. The buyer is right. He must list a cheap tyre as his standard; he must fit a semi-racing tyre as his standard. But amongst the great army of motor cyclists there are hundreds of men who would gladly pay £1 10s. extra to have their machine sent out with a much wider rear rim and a rear tyre with some solid depth of substance on the road. Makers, therefore, should co-operate with the tyre firms to list what is practically a voiturette rear tyre as an extra on a special rim and wheel, a tyre which would go through an ordinary year without appreciable wear and without puncture. A. G. Reynolds is one of the few riders with sufficient enterprise to effect this transformation for himself. On the rear wheel of his 2¾ h.p. Bat he has a voiturette car tyre, and he says it has doubled the machine's comfort and reliability.

Ladies' Motor Bicycles.

Miss F. M. Crombie has very kindly sent me a picture of herself with her Matchless machine, which I have asked the editor to insert in my comments this week. It has a 2½ h.p. Jap engine, with automatic lubrication, complete handle-bar control, 2in. tyres, spring forks, spring rear frame, scales about 100 lbs. all on, and will carry her weight up "almost any main road hill." She says "she would not go back to the push bicycle at any price," and so I hope she will be an apostle of motor cycling for ladies in her native district.

Miss F. M. Crombie.

QUESTION & REPLIES

A selection of questions of general interest received from our readers and our replies thereto. When particular makes of machines, accessories, or tyres are mentioned, numbers must be used, the writer to keep a key for reference. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied with a stamped addressed envelope for reply.

Misfiring at High Speeds.

I have a 3½ h.p. motor bicycle, accumulator ignition, trembler coil, which pulls well on hills, but as soon as it gets on the level and I advance spark for speed it commences to misfire. Carburetter clean, good spark at plug. Thanks to *The Motor Cycle* it has made things easy for me up to now.—NOVICE, Burnley.

The trouble is probably due to the carburetter not receiving sufficient air at high speeds. A larger choke tube might be tried with advantage. If the misfiring does not disappear try cleaning and adjusting the contact maker and the platinum points of the coil.

Fitting an Auxiliary Air Inlet.

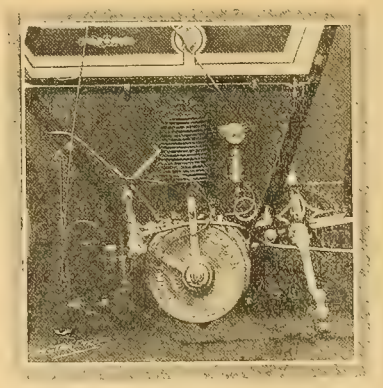
I recently fitted an undershield (leather) to my 9 h.p. Singer tricar. It seems to affect the air supply, as I found I could not get sufficient air to carburetter unless I removed the wire gauze from the air inlet. Would an additional air inlet help matters, and what kind would you advise, automatic or regulated by hand?—J.P.

We should advise an extra air inlet in the shape of a tap screwed into the inlet pipe above the throttle, so that when you are running fast you can open the tap full, and when descending a hill you can close the throttle and leave the tap open, thus cooling the engine. In warmer weather you might obtain better results by using the next size larger air adapter.

A Seven Days' Tour in France.

A party of four of us intend starting from here in June, getting to Boulogne, and from there striking southwards, our tour to take seven full days, in two 5 h.p. tricars, weighing 4½ cwt. each. Will you kindly inform me on the following points: (1.) Cheapest way to get to Boulogne? (2.) Route to take from Boulogne? We wish to do about 130-150 miles per day. (3.) Do you consider it a good tour? We shall have a French scholar and mechanic with us. (4.) Is it likely to be expensive?—H.E.S., Catford.

(1.) First of all, we should recommend one or all of your party to join the A.C.U., so that you will be able to enjoy the special touring facilities offered by the R.A.C., to which the A.C.U. is affiliated. The latter will get your machines through the customs, and you may pay the deposit on them in London; they will get your tickets and make arrangements for the machines to be taken on the boat, and give you every assistance. We should recommend you to get through them a "Guide Taride" and the "Annuaire de Route" of the French Automobile Club. The latter is most useful, as it gives the names of the best hotels. The cheapest way to get to Boulogne would be to drive the machines down to Folkestone, and then put them on the boat. If you take them by the cargo boat it will cost a little less. We should almost advise you to go to Havre instead of Boulogne, as it brings you into a more interesting country, and you will save a day's journey of 150 miles at least. (2.) A good seven days' trip would be



A Fit-all two-speed engine-shaft gear fitted to a 1907 Triumph.

the following: If you start from Boulogne it will be quite a day's run if you get to Rouen; if you start from Havre you will be able to go through Rouen to Chartres the first day, and Orleans, Blois, Tours, and Angers the second day. All the places are extremely interesting, and if you care for sight-seeing you should take two days over this part of the trip. This will take you down the valley of the Loire, which is extremely picturesque, and when you have reached Angers you will not be far from the western coast, where the scenery is rather fine. Places worth visiting are: Vannes, whence you can make an excursion to Quiberon, you can then go to Roscoff, through Quimperle, Chateaulin, and Morlaix. You can then head your way along the coast through St. Malo, Avranches, Caen, Lisieux, Bernay, Rouen, Caudebec, and Havre. You will be able to follow this little tour out quite comfortably by referring to the Guide Michelin, which can be obtained from the Michelin Tyre Co., 49-50, Sussex Place, Kensington, S.W. An excellent map is given with this publication. (3.) You will find this to be an excellent tour. We have not divided it up into days. Did we do so you would probably never adhere to them. So many objects of interest always crop up which hopelessly alter one's original plans. The roads are likely to be excellent, and you can nearly always shorten your journey by cutting off corners if you are pressed for time. (4.) The cost at first-class hotels will be less than that of touring in England. When once over the water you will do well to follow the hotels recommended by the French A.C., and only stop at villages with not more than 2,000 inhabitants.

Clearance between Valv and Tappet.

My 1907 5½ h.p. Rex de Luxe has lost all the compression it had a few weeks ago. It seems to have a little in the rear cylinder, but none at all in the fore. I have had off both cylinders and have ground in both exhaust valves, but this has done no good. The piston rings are quite correct, but I notice in the fore cylinder, part of the piston just below the rings, seems to have been knocked or blown off. Would this affect the compression? The exhaust valves also do not seem to have any clearance between the tappet rods. How can I remedy this, and what should the clearance be? The engine also will hardly take any air from Longuemare carburetter, even although the six holes on bottom of same are closed with a shield for slow running.—S.H.A., N.B.

The fact of there being no clearance between the exhaust valves and stems accounts for the absence of compression. The inlet valves may also want grinding in. You should examine the exhaust valve seating and see if there is any crack, also notice if the piston is cracked. The small fault in the latter which you mention should not affect the compression to any extent. The clearance between the tappets and the exhaust valves should be 1-32in., and

the ends of the valves must be filed off until this clearance is obtained. You might overhaul your carburetter for obstructions, and if after thoroughly cleaning all passages the engine will still take no more air, you might try a larger jet or smaller adapter.

Periodical Attention to a Motor Cycle.

My mount is a 1908 Triumph. (1.) Should I keep the two oil reservoirs of magneto filled with oil, and what oil should I use for the magneto? (2.) Is it true that I should keep the spark lever fully advanced and never touch it? (3.) How often should the cylinder be cleaned out?—BK 423.

(1.) Yes. Water-cooled engine oil is more suitable. After a few weeks running remove the screws underneath the reservoirs to drain all the oil out and swill with paraffin. Then fill up again with clean oil. (2.) In the case of the machine named, the spark is timed in such a way that the lever does not require altering except on a very severe hill, when it might be an advantage to retard the lever one or two notches at the most. (3.) The cylinder head should not require to be cleaned under 1,000 miles running, but clean out the crankcase with paraffin oftener than this.

Respecting a Passenger Attachment.

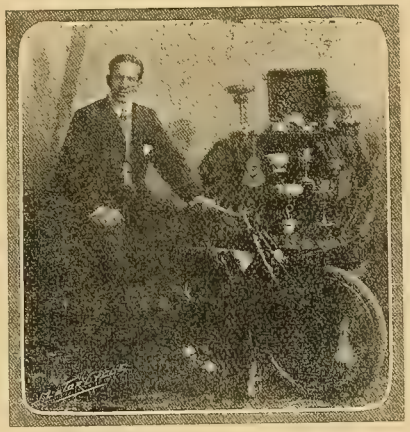
I am about ordering a 1908 Phelon and Moore 3½ h.p. magneto. (1.) Is the above bicycle capable of taking a Montgomery sidecarriage when rider weighs eleven stones and passenger fourteen stones. (2.) Would this combination, if fitted with the new Montgomery non-slipping attachment absolutely obviate sideslip (a) with passenger, (b) without passenger? (3.) In case the bicycle with sidecar would not be and could not be rendered free from skidding for regular winter riding would the bicycle above-mentioned be able to carry driver and passenger by means of Chater-Lea forecar attachment when hills of two or three miles might be encountered on the journey? (4.) Would the fitting of Goodrich tyres obviate any sideslip which the Montgomery attachment would not prevent, even when riding without passenger? (5.) In case I should decide to have the Goodrich non-skid on my tyres would it be better to have it vulcanised on the extra heavy Clinchers which go with the P. and M., or to have them changed for the Goodrich tyres?—M.A.K.

(1.) The machine in question would be quite up to the work. (2.) There would be very little risk of sideslip if you had a non-skid on the bicycle. (3.) Yes, a forecar attachment could be easily fitted if desired, but might be likely to cause overheating owing to the position of the engine. (4.) Undoubtedly, the fitting of these tyres would obviate sideslip until the rubber studs were worn down. (5.) The best plan would be to fit extra heavy Clincher tyres at first and use them until the corrugations are worn off, and then send them away and have the Goodrich tread vulcanised on to them.

The Correct Method of Driving.

I have a 3 h.p. Triumph magneto, purchased second-hand, and I am not certain whether my method of driving is correct. I drive as follows: Spark as far advanced as it will go without making the engine knock. Throttle almost closed, and as much air as engine will take without missing fire. On climbing a hill I open throttle, and if the engine begins knocking I gradually retard spark, and at the same time shut off a little air. I must say that the machine is in very good condition, and is very fast on the level, but knocks a bit on a steep hill. I have cleaned all deposit off piston and cylinder head, fitted new rings, and ground in valves. Also I can detect no vertical play on the connecting rod bearings. —E.R., N.B.

Your method of driving is apparently quite correct. You might, however, try closing the air first and then retarding the spark, but if you retard the spark too much owing to weak spark and late timing, engine will get hot and knock. You do not mention the ratio of the gear and your weight. Possibly you are geared too high.



Mr. Pat Stewart, of Poona, India, with his collection of motor cycling trophies, and his favourite mount, a Twin Brown.

Opinion of Machine Wanted.

(1.) Is the twin Roc a suitable machine for touring? (2.) Would it be any good to enter for hill-climbs? (3.) Is the speed gear thoroughly reliable? (4.) Is it economical? What will it cover on one gallon of spirit? (5.) What speed on a level road with a rider of about nine stones up? (6.) Is it comfortable, vibrationless, and noiseless?—GROSVENOR, Cheshire.

Unfortunately, we have not had a lengthy experience with the latest model. (1.) Yes. (2.) This is a question which we cannot very well answer. If tuned up there is no reason why it should not score in hill-climbs. (3.) The gear appears to be satisfactory. (4.) We should estimate the consumption to be, roughly, sixty miles to the gallon. (5.) Maximum fifty miles an hour, average over thirty. (6.) The machine appears to be vibrationless and comfortable.

Calculating the Gear.

My machine is a 3½ h.p. Peugeot engine in a Chater-Lea frame with Longuemare carburetter and plain coil. The circumference of belt pulley (inside measurements) on the engine is 10in., and on back wheel 55in. Back wheel is fitted with a 26in. by 2¼in. tyre. It is very fast on the flat, but seems to lack power on a stiffish hill, and will not run without misfiring unless I have the petrol nearly full on, and the spark well advanced. Do you think it is too highly geared? and what would be the gear from the above dimensions? I have the commutator well adjusted. —J.Y.N.C.

The dimensions you have given us will not give the gear accurately. What you should do is to mark the pulleys, wheel the machine along, and note how many times the engine pulley revolves to one revolution of the road wheel. This is the only correct method of obtaining the road gear. Your machine should be geared about 4¾ to 1.

Sluggish Starting due to Carburetter.

Please diagnose cure for following symptoms on 3½ h.p. 1907 Rex with magneto ignition. Machine will not start cold till pedalled over compression very fast, and then jumps off at full speed with spark fully advanced, throttle wide open, and air closed. It will then take very little gas, but I cannot open air lever. After running two miles or so it overheats and stops. Sometimes carburetter drips when standing if tap is left on.—S.I., Leeds.

The difficult starting is caused by too great an air supply. A smaller funnel in the carburetter would improve matters. The over-heating is certainly curious, and we cannot understand it. The carburetter should be so adjusted that you should be able to run with the throttle half open and three-quarters of the air, and almost full air when running uphill with the throttle full open. The flooding of the carburetter can be cured by grinding in the needle valve with crocus powder.

READERS' REPLIES

In reply to "Novice," page 457, you give a method of grinding in valves. Now if "Novice" has an obliging friend to hold the cylinder the following, I have found, is much easier and quicker than the screwdriver method: Get an ordinary joiner's brace and fit a screwdriver bit into it. The assistant should hold the cylinder in a horizontal position, while one turns the brace, easing up the valve every now and again to let the emery get a fresh grip. I hope that this tip may save some brother motorist from long hours of tedious labour.—A. SOMMERVILLE.

[It is quite true a brace can be used when cylinder is removed. Or if one has access to a vertical drilling machine grinding in can be done by power if care is used to prevent scoring.—ED.]

London to Edinburgh and Back.

FOR some days previous to the closing of the entry list for the M.C.C. annual twenty-four hours' run I had not made up my mind whether to compete, but finally sent in an entry form giving particulars of my 5 h.p. Rex motor bicycle, to which I pinned my faith to carry me over the four hundred miles separating London and Edinburgh in twenty-four hours, and also the return journey to London for the Schulte and Motor Cycling Club Cups. Preliminary details over, I commenced to prepare for my self-imposed task, the magnitude of which grew upon me as Friday, 5th June, the day for starting, drew near. As a training spin I rode from town to the A.C.U. hill-climb at Sutton Bank, near Thirsk, Yorkshire, a distance of 223 miles. My only worry was tyres, and the difficulty was to obtain a cover on which I could depend to stand the strain of a 5 h.p. twin over 800 miles, and also be free from punctures. I eventually obtained a 2¼in. Shamrock Excelsior rubber-studded cover, in which I fitted a Miraculum-filled tube, leaving the original cover supplied with the machine on the front wheel, but as things turned out, I found tyres cannot be too new at the start for a long distance ride. Two Rich detachable tubes formed my spares, and without them I should not have completed the trial. I also carried a good supply of inlet and exhaust valves, sparking plugs, nuts, bolts, and other small useful parts.

The Day of the Start.

On the Friday evening I made tracks for the Old Gate House, Highgate, arriving about 8.30, but on the way broke one of my pair of lamps over the vile surface of Finchley Road, and I thought this a bad omen at this early period. A large crowd had already collected, and a good number of competitors' motor cycles and cars lined up in their respective positions on both sides of the road. Of the chief marshal I obtained my numbered armlets, two short streamers of green ribbon for tying to the handle-bar to denote "return journey man," and also two bundles of numbered tear-off tags for handing to the checkers along the road. After answering many enquiries as to whether I was "feeling fit" and attending to the "inner man," I obeyed the marshal's instructions, and lined up in single file with the rest, there being only four or five absentees from the record total of 135 entries. On the stroke of ten o'clock Mr. F. T. Bidlake gave the first man word to "go," and this was the signal for a hearty cheer from the thousands of spectators gathered around, who extended almost without intermission to Barnet. The cheering recurred at intervals as each man was despatched into the darkness.

Rain at the Start.

Whilst waiting for my turn to start the sky became very black and overcast, and I felt a spot or two of rain. "Ten seconds," "Five seconds," "Get ready," "Go," and I found my machine being pushed by willing hands to get the engine to fire, which it did instantly. Once clear of the tramlines, I settled down to a steady bat, and, with the engine humming nicely, I soon arrived at Hatfield, where I came upon the official checker quite unexpectedly several minutes ahead of time. This sort of thing would not win me the Schulte Cup, so I went on a little steadier to Biggleswade, where I arrived dead on time. The rain about here made matters uncomfortable. After filling up with petrol I started off for Grantham, where the competitors had been kindly invited to breakfast at the George Hotel by Mrs. Marshall. In the meantime my lamp gave up the ghost, and I rode behind a large car with powerful headlights for some distance until at 2.15 a.m. it was light enough to see the road. I passed several of the other competitors on this stretch, all of whom seemed to be going well. I was cold and hungry on arriving at Grantham, and scampered in for warmth and a welcome repast. By this time the rain had cleared off, and a fine day looked promising. The run to Wetherby seemed the longest hundred miles stretch of the ride, and, peculiarly, the second hundred on the return journey also seemed of indefinite length. I had nothing to trouble about, and ambled along at an easy pace, occasionally passing a competitor busy with his puncture outfit. My twin seemed to revel in its work, and Wetherby was reached with plenty of time in hand. Whilst partaking of the second breakfast reports came in of serious accidents in the dark to two or three competitors. Rumours of police traps were heard, and everybody henceforth kept a keen look-out.

Tyres the Chief Trouble.

The high wind in the teeth of the competitors must have set the low powered machines a severe task—in fact, I passed several competitors pedalling on hills, but few appeared to have mechanical troubles, tyres causing the most stops. The next halt was Newcastle for luncheon, and the point which struck me most on this portion of the ride was the excellent marking of the route with the M.C.C. arrows, by the Newcastle and District Motor Cycle Club. This was especially noticeable near Durham, which city was avoided by making a detour of two or three miles. Mr. S. W. Carty was in charge of the checking sheet, and I signed on feeling as fit as the proverbial fiddle. Luncheon added renewed vigour, and after obtaining petrol and oil, and wiping some of the dust off the machine, I set out for Edinburgh on the last hundred. My only difficulty now was to find a comfortable position in which to sit, and my wrists also commenced to ache. The wind had almost dropped, and the dust contained a little less coal. At all the checking stations where I stopped there were numerous enquiries after the lady competitor, Miss Muriel Hind, and everybody admired her pluck and endurance. After leaving Newcastle, the coast road was taken, and a refreshing breeze told me of the proximity of the sea, which shortly came into view.

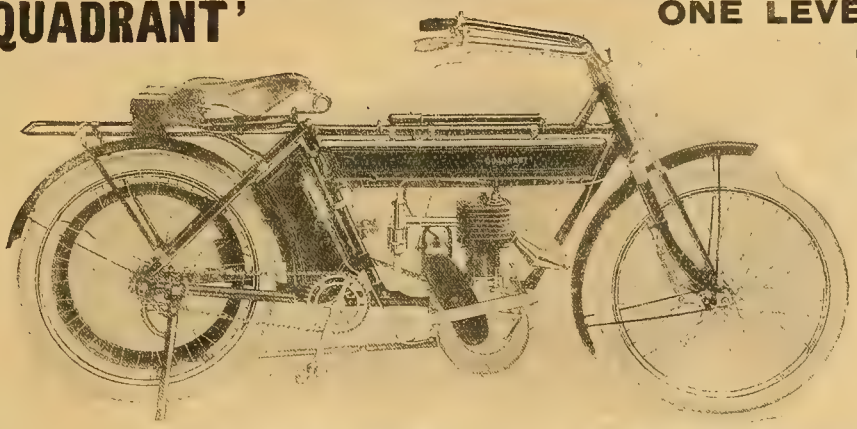
The Finish of the Long Run.

Some of the competitors, after signing at Berwick-on-Tweed, where tea was provided, seemed to desire to reach Edinburgh in as short a time as possible, and I will admit I arrived at Levenhall with plenty of time to spare. We were then directed to the Royal Hotel, where we signed the final checking sheet, and the Schulte Cup competitors' machines were locked up in a special garage by the officials, to be handed back to the owners half an hour before starting time on Sunday at midnight. After dinner, having recounted

The New 'QUADRANT'

3½ h.p., M.O.V.

ONE LEVER only controls it from handle bar.



"LIKE AN ARM-CHAIR"

All riders are agreed in opinion as to its extreme comfort, many of them expressing themselves in the same words—"It is like riding in an arm-chair."

Very low frame. Takes every hill in the kingdom. Very fast. Gentleness itself in traffic. Starts instantly. Control simply perfect.

A few A.O.V. models at bargain prices.

Makers: THE QUADRANT MOTOR CO., LTD., Earlsdon, COVENTRY.
(Late of Birmingham.) *Please note correct address.*
REPAIRS: Genuine Quadrant parts for all Quadrant engines.

SPECIAL OFFER OF THE RELIABLE

'DIAMOND' Motor Cycles

The last word in Motor-cycle construction and the product of [redacted] RIDING EXPERIENCE.

In order to introduce these splendid machines to the MOTOR CYCLING PUBLIC we are prepared to supply a limited number to RIDERS living in districts where these machines are not known, at the following SPECIAL PRICES.

2½ h.p. A O I V, 70 × 80	Usual Price,	£26 10s.	SPECIAL PRICE, £21
*3½ h.p. M O V, 78 × 84	,, ,,	£37 10s.	,, ,, £28
*4 h.p. Twin Cylinder, A O I V, 66 × 72	,, ,,	£45	,, ,, £36
*5 h.p. Twin Cylinder, M O V, 73 × 78	,, ,,	£47 10s.	,, ,, £38

* Fitted with Special Spring Forks. No Side Play.

ALL MODELS FITTED WITH BOSCH MAGNETO. These are STANDARD MACHINES in every respect, and are NOT SPECIALLY BUILT to sell at special rates.

Full Particulars from:

The VICTORIA TRADING Co.,
47, Lamb's Conduit St., Theobald's Road,
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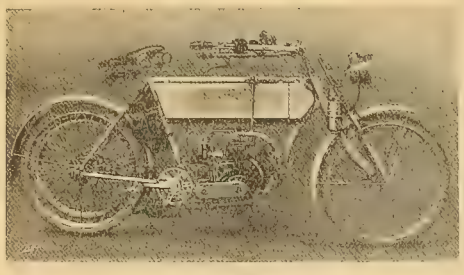
Telephone: 2797, *HOLBORN.*



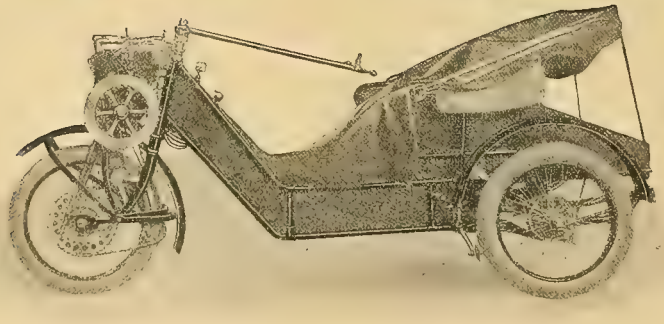
4 h.p. Model.

PALMER TYRES

The Palmer Motor Cycle Tyres are treaded with the well-known "rib," being designed to give a better grip on greasy roads. No side-slip attachments are needed with this ribbed tyre. The Palmer Motor Cycle Tyre for the same reason has a much smaller contact area with the road, giving a firmer grip and higher speed with less slip. Send for fully descriptive Booklet to

THE PALMER TYRE LTD.,
119. 121. 123. SHAFTESBURY AVENUE. LONDON. W.C.

The Phenomobile



solves the problem of the **Sociable** Tricar.

The Phenomobile combines the simplicity and low cost of upkeep of a Motor Cycle with the comfort and efficiency of a Car. In one vital point it even excels any motor-propelled vehicle: It is **entirely free from sideslip.** There are many other advantages which the Phenomobile possesses over the ordinary type of Tricar, and we shall be pleased to furnish you with full particulars on receipt of a postcard. Prices from **105 guineas.**

Sole Concessionnaires:

THE NEW ERA MOTOR CO., 6, Lonsdale Road, West Kilburn, LONDON, N.W.

Telephone: 3019 P. Hampstead.

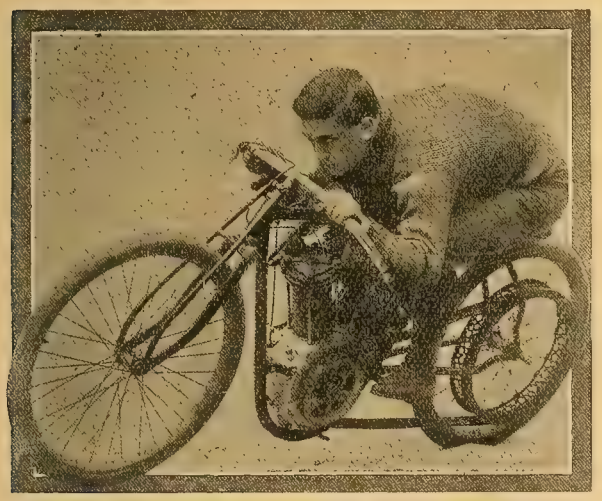
In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

London to Edinburgh and Back.—

a few adventures with the other competitors, I turned in for a good night's rest, with a very satisfied feeling. Nearly one hundred of those who started duly arrived in Edinburgh inside thirty hours—a very good proof of the reliability of the modern machine. I was not about very early next morning, and those competitors who had not to make the return ride started for home by different routes, some going by road through Kendal and the Lake District. On Sunday it rained nearly all day, and the return journey men rested quietly. Activities commenced again about 11 p.m., and we all made the most of the half hour allowed to prepare our travel-stained steeds for the return run.

Commencement of the Return Journey.

I was given the word "Go" at 12.46, and was off again to cover that long distance separating the two capitals full of hope. The rain had ceased, and the night was beautifully clear—in fact, at 2 a.m. I dispensed with the lamp, as I could see well enough to avoid the rabbits which abounded. I kept company with Godfrey and Winslow, both on Rex machines, and we ran through to Berwick, which was the first breakfast stop, like clockwork. The only incident on this



Geo. A. Barnes, "the English cannon ball" as he is called in Paris, on his new 14 h.p. racing machine.

stretch was the difficulty experienced in getting over the vile cobbled surface of Dunbar. After feeding, I procured a gaiter for the front tyre, out of which a piece had been cut by some sharp stone, and repaired my rubber belt, the fastener having pulled through. Off again punctually to schedule. Perfect travelling conditions prevailed, the day commencing warm. A few miles out of Berwick my back tyre went down, the valve of the tube containing the Miraculum having pulled out, to which I do not attach any blame. I threw the tube away, and quickly fitted one of the Rich detachables.

All the cup competitors' machines seemed to be running perfectly, the lame ducks having dropped out on the journey north. Some of the competitors must have been endowed with the patience of Job himself, keeping so strictly to 20 m.p.h., actually arriving in controls within seconds of schedule. I found the short distance over which I kept strictly to time very tedious work. A very excellent system of secret checks was adopted, a car travelling in front of the riders dropping a timekeeper, who would secret himself in the hedge and take the competitors' times as they passed, to be picked up later by another car following in the rear.

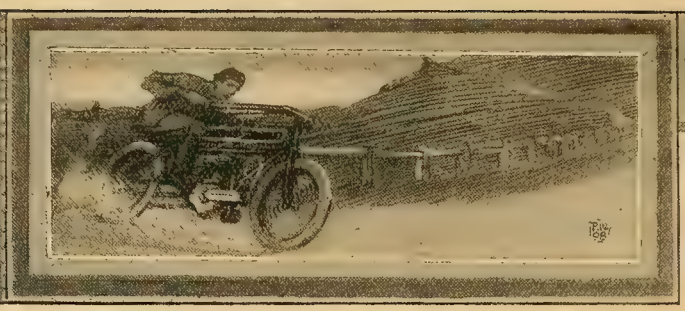
Two Policemen up a Tree.

On two or three occasions, until I became accustomed to this arrangement, I took the timekeeper to be an assistant in a police trap, of which there were several of the long distance variety along the road, and in one place I espied two men comfortably ensconced up a tree. Only two or three competitors were caught, however. At Newcastle the second breakfast was ready, and once more replenishing the tank, we set out for Wetherby. Beyond care in passing several flocks of sheep and herds of cattle, I had nothing to do but steer and give the engine a pumpful of oil every few miles. Once I caught up the leading official car, but was promptly warned to keep in the rear, and popped along very slowly to the luncheon place, which marked the completion of three parts of my task. At Wetherby the competitors were warned that the police were everywhere as far as Grantham, and this proved rather awkward, as I had two or three punctures and had to make up time. I, however, managed to reach Grantham, where tea was waiting, to schedule, after going very slowly on account of a police trap outside the town. Then I experienced a whole host of tyre troubles. Five miles out I damaged my second spare tube beyond repair, and I had to insert a 2in. tube, kindly lent me by a passing motor cyclist. This necessitated taking the back wheel out on the road, which delayed me an hour, and to make up I was obliged to travel very fast to Biggleswade, fifty-five miles away. Replenishing the petrol tank for the last time, I lit the lamp for the thirty-five miles to Barnet. The machine ran perfectly until about three miles out, when the belt fastener again pulled through. Nothing less than a 1in. belt is strong enough for a 5 h.p. twin. I was in a predicament, as the belt was now too short, but managed to rig this up satisfactorily, and duly arrived in Barnet about 11 p.m., where Bidlake again officiated with the watch, and I thus qualified for the Schulte medal. The return journey did not seem nearly so long as the outward run, probably because the ground was now more familiar to me. I felt quite fit bodily, but sleepy. I supped at the "Old Sal," and then made for the west of London. Some of the riders seemed loth to leave the hospitality of the hotel, and slept there the night. Next morning, after a good night's rest, I felt almost sorry I was not due away at midnight on the return journey again, so enjoyable had been the run. Barring tyre troubles and the belt pulling through, not a single detail of the twin-cylinder T.T. Rex required attention. The marking of the route and general organisation of the run were excellent, and did great credit to the officials of the Motor Cycling Club responsible.

H. P. BEASLEY.

Readers who are in possession of worn leather or rubber V belts need not discard these as useless. Price and Co., 11, Mount Pleasant, E.C., have brought out some grips called the Ukantes, which can be affixed to the belt at intervals of about 2½in. These pack the belt up in the groove of the pulley, and prevent it slipping through touching the bottom of the groove. We understand that quite a large business is being done in them.

CURRENT CHAT.



Special Features

LONDON to EDINBURGH AND BACK.

RIDING POSITION AND "POPPING."

End-to-end Records.

The list of Land's End to John o'-Groat's records given at the end of April requires revision, as three out of the four mentioned have been broken during the present month. The new records are: Motor bicycle, 41h. 28m.; motor car, 42h. 5m.; pedal bicycle, 3 days 5h. 20m.; walking, just under 17 days.

A Good Day's Run.

The Sunderland and District M.C.C. is celebrating Race Wednesday (to-day, June 24th) by having a run to Doncaster and back, starting at the early hour of 4.30 a.m. Race Wednesday is the principal day of the Newcastle Race Week, and one of the most popular holidays of the year along Tyneside and Wearside.

For Suppressing Furious Driving.

The Toronto police authorities have decided to adopt motor bicycles for use in catching motor car drivers who exceed the speed limit, and have selected Brown motor bicycles for the use of their staff.

A Midsummer Climb.

We hear that the S.E.A.C.A. has decided to promote a midsummer hill-climb on an entirely fresh hill in Kent. Competitors only will be advised of the location of the hill selected at the shortest possible notice, so that no possibility of police interference is to be anticipated.

Speed Limit at Croydon.

What with ten mile limits and long-distance traps, the Brighton Road will soon be impossible. Croydon has now applied for a ten miles limit on the Brighton Road, and also certain roads at Norwood.

Championship of France.

The Auto Cycle Club of France is organising an event styled Championnat de France de la Motocyclette, which is to be decided at the Parc des Princes track on the 23rd of July next, the distance being 100 kilometres. The contest will be confined to machines of French make with engines not exceeding 250 cm. capacity.

The Poor Man's Motor.

An interesting article appeared recently in the *Birmingham Daily Mail* entitled "The Poor Man's Motor, or Six Years' Experience of Motor Cycling." There is one paragraph in the article which we think requires confirmation, and that is the average speed on tour of a 2½ h.p. motor tricycle with trailer, stated to be twenty-two miles an hour. Years ago we had a lengthy experience of motor tricycles and trailers, and certainly cannot remember averaging twenty-two miles an hour. Tricycles were very efficient hill-climbers, and, suitably geared, would pull a trailer at an average speed of eighteen miles an hour, but we hardly think twenty-two miles an hour could be maintained for long distances.

FUTURE EVENTS.

June 24—London United Tramways Five Miles Tourist Motor Cycle Handicap at the Stadium.
" 27—M.C.C. INTER-TEAM TRIALS for "The Motor Cycle" Fifty Guineas Challenge Cup. Prospective Competitors: Motor Cycling Club, Coventry M.C., Great Yarmouth M.C.C., Birmingham M.C.C., Lincolnshire M.C.C., Liverpool M.C., North West London M.C.C., Sheffield and Hallamshire M.C.C., Manchester M.C., and Bocardo M.C.C. (Oxford).
" 27—Motor Cycle Union of Ireland Inter-centre Contest for the Triumph Cup.
" 27—Scottish Twelve Hours' Open Reliability Trial.
" ——A.C.U. 24 Hours' Ride, London to Plymouth and back.
July 4—Essex M.C. Open 200 Miles Non-stop Run.
" 6-7—A.C.F. Grand Prix Races for Car Voiturettes.
" 13-18—A.C.U. LAND'S END TO JOHN-O'-GROAT'S SIX DAYS' RELIABILITY TRIAL.
" 14-15—M.C.U.I. (Ulster Centre) Open 400 Miles Reliability Contest.
" 25—Motor Cycling Club Petrol Consumption Tests.
Aug. 8—Essex M.C. Open Race Meeting at the Stadium.
Sep. ——The International Auto Cycle Tourist Trophy Race in the Isle of Man.

New Police Traps.

In Grange Road, Northgate, Darlington, there is a trap 290 yards in length.

A mile outside Basingstoke, on the main road from London, a trap is being worked from the top and down a steep hill.

At Studley, Warwickshire, all motorists are timed over a quarter of a mile from Watt Road to Spernal Ash.

Motorists are timed over the straight stretch of road between Newark and Kelham.

There is a four miles trap on the Old Chester Road from the cross-roads at the Queensferry Road to a point near the canal bridge by Chester. (Worked on Sundays.)

Also one on the Broad Green-Roby Road, and one between Huyton Church and Prescot.

The Puncture Fiend Defied.

Few competitors in the M.C.C. London to Edinburgh and back trial can boast absolute immunity from tyre trouble, yet O. C. Godfrey, whose twin Rex had tubes charged with Miraculum, had no occasion to use the pump at all. We understand that several nails and pieces of iron were removed from the tyres *en route*, but none caused delay.

A Prominent North-country Motor Cyclist.

One of the most prominent men in the North Durham district who has adopted motor cycling as a hobby and a convenience is Major Ernest Vaux. He may be seen frequently riding from the middle of Sunderland into the rural district on its western boundary, where he has a pleasant estate—Herrington Hall, Grindon. Major Vaux, by the way, is one of the supporters of Lieut.-General Baden Powell's scheme of boy scouts, and it is at his Grindon estate that some of the Sunderland and London scouts, raised by the general, have been recently encamped.

The End-to-end Trial Next Month.

Intending competitors in the A.C.U. Land's End to John-o'-Groat's Six Days' Trial should note that entries definitely close on Saturday next, the 27th inst. In addition to the list of twenty-six entrants referred to last week, a number of further entries have been received, and it is expected that the list will be considerably swelled between now and Saturday.

The A.C.U. and Unattached Riders.

At a committee meeting of the A.C.U. on the 12th ult. the question of the association of unattached riders was referred to the Legislative Sub-committee. The report was that a scheme of association was not wanted, and should be rejected. This report was then submitted to the General Committee and accepted, and a resolution passed that an associate scheme be rejected. In the meantime it is worthy of note that the Brighton and District M.C.C. is enrolling associate members at 4s. per head, the South-eastern Auto Cycle Association at 5s., and among other advantages the last-mentioned club is just concluding an agreement for a reduced insurance policy. The Bradford M.C.C., and, we believe, the Newcastle and District M.C.C., have also similar schemes.

Our Black List.

A car bearing the registration letter K was driven at an excessively fast speed through Coventry on Friday last, about 2.20 p.m., considering the amount of traffic and the repairs being undertaken on the Birmingham Road.

Petrol in One Gallon Tins.

Regarding the paragraph recently published in these columns on the subject of one gallon tins of petrol, sealed and stoppered, Messrs. A. W. Heybourn and Co., High Street, Maidenhead, advise us that one gallon cans have been stocked by them for over a year. Large petrol distillers should note this.

Additional New Police Traps.

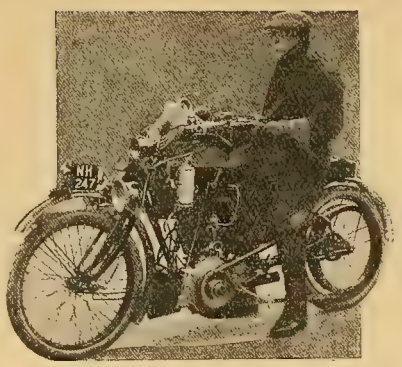
Between Llanfairfechan and Penmaenmawr on the Bangor-Conway Road, and on the Holyhead Road between Capel Curig and Bettws-y-Coed. These traps are working on Saturdays and Sundays, and are controlled by means of a flag, which is not always operated from the same place.

Flying Kilometre Races at Lyons.

The Motor Cycle Club of Lyons held races over a flying kilometre on the 21st. There were four classes. Class I., for motor cycles with engines not exceeding 250 cubic centimetres. Class II., not exceeding 333 cubic centimetres. Class III., not exceeding 500 cubic centimetres. Class IV., over 500 cubic centimetres. The results were: Class I., Pons (Peugeot), 59⅗s.; Class II., Ferrand (Magnat-Debon), 50⅗s.; Class III., Dravoub (Peugeot), 50s.; Class IV., Bouvard (Peugeot), 47⅗s. The time in Class IV. equals a speed of just under forty-seven miles an hour.

Amusing Evidence.

At Middlesbrough, last week, a Normanby motor cyclist was charged with riding a motor cycle to the danger of the public at South Bank on the 6th inst., at 11.15 p.m. A constable said immediately the motor cyclist passed him he increased his speed—he could tell by the beat of the machine. There were a number of people on the road. The defendant said that although he increased the speed regulator, owing to the fact that the belt was slipping, his machine travelled no faster, but the beat of the engine increased. He did not travel more than 15 m.p.h. that night, and rode carefully all the way home. The case was dismissed.



An amateur rider, C. H. Crole-Rees, who successfully rode his 6 h.p. Advance in the London to Coventry and Back Twelve Hours' Run, and the London to Edinburgh and Back Run.

An Aged Joke.

What reader has not heard and read more than once the story of the begoggled motor cyclist on his way to Regent's Park, enquiring of a boy if he was right for the Zoo? The stereotyped paragraph re-appeared in a "bits" paper last week, but the real joke, we presume, was that the paragraph was printed under the heading, "One guinea per column is paid for *original* contributions to this paper."

The End-to-end Trial Next Month.

Additional entries for the A.C.U. End-to-end Trial are: A. H. Ormerod (5 h.p. F.N.), J. O. M. Dixon (3½ h.p. Vindec Special), Capt. Sir R. K. Arbuthnot, Bart., R.N. (3½ h.p. Triumph), R. Moore (3½ h.p. P. and M.), A. D. Nicholson (3½ h.p. Triumph), H. N. Dommett (machine not stated), Robert King (3½ h.p. Triumph), J. Haslam (3½ h.p. Rex), F. W. Applebee (3½ h.p. Rex), and S. W. Carty (3½ h.p. N.S.U.)

A Display on the Track.

D. R. Clark gave a motor cycle display on the St. Alban's track in Clarence Park on Saturday afternoon in connection with the Garden Party and Evening Fête in aid of the Railwaymen's Convalescent Home, Herne Bay. Riding his 2¾ h.p. Century-Givaudan he accomplished the five miles in 6m. 36s. with a very strong head wind blowing over part of the track. His time was ⅘s. slower than Colver's, who holds the track record.

M.C.C. Team Competition.

Teams from the following clubs have been definitely entered for the M.C.C.'s 100 miles team trial for *The Motor Cycle* Cup: 1, Southern M.C.; 2, Coventry M.C.; 3, North West London M.C.C.; 4, Motor Cycling Club; 5, Bocardo M.C.C. (Oxford); 6, Sheffield and Hallamshire M.C.C.; 7, Great Yarmouth and District M.C.C.; 8, Manchester M.C. and 9, Birmingham M.C.C. In addition, an entry was expected at the time of going to press from the Lincolnshire M.C.C. If all the above teams compete on Saturday next it will be the largest number that has started for this event, and reflects great credit on the trials hon. sec., Mr. J. Van Hooydonk.

Important.

Competitors in the above team trial are hereby notified that in consequence of the very loose state of parts of the surface of Watling Street, between Daventry and Cross in Hand, the course has been altered from Watling Street to the Daventry, Byfield, and Chipping Warden road. This course includes one or two fairly steep hills.

Accommodation at Daventry.

Those motor cyclists who are competing in the M.C.C. Team Competition on Saturday next would be well advised to book their accommodation early. Daventry possesses several well-equipped hotels, but the accommodation is not unlimited. The principal hotels in the town are the Bear, the Peacock, and the Wheatsheaf, and they can accommodate about sixty.

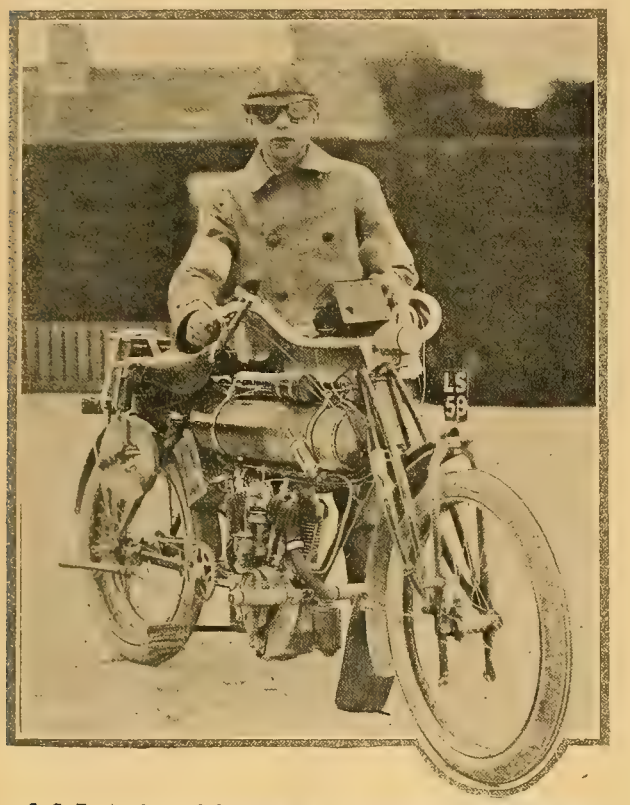
How to get Rich Quickly.

The following paragraph is culled from the *Bridport News*. Bridport is a small town situated between Weymouth and Exeter, and was at one time notorious as a smuggler's resort. "The Mayor asked why the Council should not put up a notice restricting motor cars to a speed of twelve miles an hour in passing through the town. When in Worcestershire quite recently a magistrate told him his Council made as much as £60 in one day in fines for motor cars exceeding the speed limit, *and he did not see why the Bridport Council should not get some money in this way* (Hear, hear, and laughter.) The Town Clerk agreed to look into the matter and report at their next meeting. (The italics are ours.)

Motor bicyclists and tricarists in the annual Woodford meet of decorated motor vehicles last Saturday.

The London-Edinburgh Medal Winners.

BELOW is an official list of medal winners in the London-Edinburgh competition. The names of the machines ridden were given in our report of the run, on page 463 of June 10th. Readers will learn with pleasure that the motor cyclists in the double journey of nearly eight hundred miles for the Schulte Cup and the special M.C.C. Cup made a very hard fight for the former trophy. S. G. Frost, who rode a 4½ h.p. twin-cylinder Minerva, was desperately near to Platt-Betts on an 8 h.p. Rover car, he being only ¼ of a mark behind, thus demonstrating that, apart from the advantage of speed measuring instruments, the skilled motor cyclist can run the cleverest car driver very close indeed. Platt-Betts, having now won the Schulte Cup twice in succession, becomes the absolute owner of it. S. G. Frost is adjudged to be the first winner of the M.C.C. Challenge Cup. This cup has to be won three times in all, not necessarily in succession, it then becomes the winner's property. A. G. Reynolds (3½ h.p. Vindec) was third.



S. G. Frost, winner of the special cup in the M.C.C. London-Edinburgh and back run. We understand that he very nearly won the Schulte Cup also. The machine is a twin-cylinder Minerva, with G.A. carburetter, Palmer tyres, Continental belt, and Brooks seat.

The following names have been passed by the committee for London to Edinburgh gold medals: Captain Sir R. R. Arbuthnot, Bart., R.N., D. S. Baddeley, L. A. Baddeley, J. L. Barratt, H. M. Bentley, R. G. Booth, Dr. E. W. Brewerton, A. T. Browett, A. J. Brown, J. F. Buckingham, P. S. Campariole, M. Campbell, W. Chater Lea, H. Childe, S. H. Clay, H. Collins, C. C. Cooke, H. Cowlin, T. F. Cox, F. Cozens, B. Cumberland, F. C. Dee, E. B. Dickson, J. O. M. Dixon, A. D. Draper, G. L. Fletcher, A. H. Forbes, H. S. Freeman, S. H. Fry, G. Gibson, W. Gunn, I. B. Hart-Davies, J. S. Harwood, F. T. Heighton, Miss Muriel Hind, J. Van Hooydonk, A. de S. Hutton, W. A. Jacobs, W. G. James, P. Janson, C. F. Lacey, Lieut. Gerald Lane, R.N., W. H. Lane, J. P. Le Grand, H. P. Mays, A. B. McDonald, Dr. C. B. Moss-Blundell, C. G. Myer, H. S. Myer, A. D. Mundy-Nicholson, V. Olsson, R. S. Parris, T. Pears, P. E. Quick, G. W. Raper, G. E. Roberts, G. Rowden, W. A. Sale, H. C. Sayer, C. J. Seed, F. G. Smith, A. J. Sproston, A. M. Tatham, A. Walton, Stanley Webb, W. H. Wells, F. White, and J. Winslow

Silver medals: W. H. Bishop and H. Williamson.

Double journey gold medals: H. P. Beasley, C. W. Brown, R. O. Clark, C. H. Crole-Rees, E. V. Fielder, S. G. Frost. E. Gwynne, O. C. Godfrey, F. J. Jenkins, A. S. Phillips, J. Platt-Betts, A. G. Reynolds, O. L. Summers, and Miss A. E. Wood.

A few names have been held over for further consideration by the committee at the next meeting. The medals and other awards will be distributed at the annual dinner, which will take place some time in December.

Details are now being arranged for the Chas. Jarrott Cup, London to Land's End and back competition, and will be sent to members in due course. The competition is open only to members of the club, so that all motor bicyclists who wish to take part in this event and are not already members of the club, should at once apply to the hon. secretary, Mr. A. Candler, 1, Lime Grove, Shepherd's Bush, W., for forms of membership.

The competition for the M.C.C. Trophy for cars has been postponed from July 11th to July 25th, and the Petrol Consumption Test will be held on September 12th.

ENTRIES FOR THE M.C.C. TEAM COMPETITION.

The very representative entry of nine teams of six riders has been received for the M.C.C. team competition at Daventry on Saturday, and the Lincolnshire M.C.C. entry was expected at the time of going to press. The clubs that have entered are: The Southern M.C., Coventry M.C., Motor Cycling Club, Bocardo M.C.C. (Oxford), Sheffield and Hallamshire M.C.C., North-west London M.C.C., Great Yarmouth and District M.C.C., Manchester M.C., and Birmingham M.C.C. The team to represent the M.C.C. for *The Motor Cycle* challenge cup on June 27th was selected at a meeting on Monday evening of last week, viz.: Motor bicyclists—E. Pond, Stanley Webb, R. M. Brice, and W. H. Wells; reserves—R. C. Davis and H. C. Slingo. Tricars—Dr. E. W. Brewerton and Frank Cozens; reserve—M. W. Randall.

"The Motor Cycle" Fifty Guinea Challenge Cup, to be competed for by teams representing nine different clubs at Daventry on Saturday.

Coventry M.C.

The following team will defend the title to the holders of the cup: Bicycles — F. Hulbert (3½ h.p. Triumph), W. Williamson (3½ h.p. Rex), F. C. Mustard (3½ h.p. Triumph), and I. B. Hart-Davies (3½ h.p. Triumph); reserves, G. E. Roberts and Geof. Smith (3½ h.p. Triumphs). Tricars—A. M. Startin (5 h.p. Riley) and G. Lee-Evans (6 h.p. Rex Litette); reserve, Stanley Riley (5 h.p. Riley).

The names of the riders representing the remaining seven clubs have not reached us. The trial starts from the Banbury Road, Daventry, at about 10 a.m. on Saturday next. The course is twelve and a half miles out, and the double journey will be covered twice before lunch and twice in the afternoon, making a total of 100 miles. For every mile covered without a stop one mark is awarded. Last year the highest score was made, namely, 534 out of a possible 600 by the Coventry M.C., but the course was more level than the one chosen for this year's trial. There are one or two hills on the Banbury Road which will test the competitors' skill in keeping their engines cool and also the power of their machines.

CLUB NEWS.

Perth and District M.C.C.

The run on Saturday last was much enjoyed. The route was by Dunkeld to Aberfeldy, where tea was served, continuing by Loch-na-Craig to Amulree, Methven, and Perth. The long climb from Aberfeldy was made more difficult by a strong head wind, but the magnificent view from the hill top was ample compensation. There was a good assembly of members.

York County M.C.C.

A twelve hours reliability run has been arranged for June 28th, and the committee are organising a twenty-four hours run from Leeds to Edinburgh and back for July 18th, the rider accomplishing the best performance to be awarded outright a valuable silver cup, kindly presented by the Palmer Tyre, Ltd. (see page 480). All members completing the run within twenty-four hours will be awarded the club's standard gold medal.

Hull and East Riding Auto Cycle Club.

On Saturday, July 4th, a hill-climbing contest will be held. Four classes have been arranged for, and the hill chosen is within twenty miles of Hull.

On July 11th the Scarborough reliability trial will be held, and a visit from the Scarborough Motor Club (reliability trial) will be made to-day (Wednesday), when members of the Hull Club will check the competitors.

Newcastle and District M.C.C.

The twelve hours trial from Newcastle to Edinburgh and back started on the 13th inst. at 8 p.m., *viâ* Ottercaps, Carter Fell, Jedburgh, Lauder, etc., returning from Edinburgh *viâ* Berwick on Sunday morning. Very severe weather conditions were experienced; heavy rain commenced to fall one hour after the start, and continued till 5 a.m., besides which there was a strong headwind. Twenty-five entries were received; eighteen men started, but a number retired. Those who finished in twelve hours were: G. W. Raper (6 h.p. N.S.U.), A. D. Nicholson (3½ h.p. Triumph), and K. Rheinlimit, and those riders who completed the run must be congratulated on a splendid performance.

Western District M.C. (London).

Members are reminded of the joint run on June 28th to Reigate with the Eastern District Motor Club. In the afternoon tea will be taken at the invitation of Mr. Leverton Harris at his residence at Dorking.

The above club held a reliability run to Salisbury and back on the 14th inst. for a silver cup given by the president. The method adopted to find the winner was as follows: Checkers took the time each rider passed them secretly at two points unknown to the competitors, both on the out and homeward journey, and they were also checked at Salisbury on arrival and departure. One mark was deducted for each ¼m. over or under a speed of twenty miles per hour. In spite of there being five different checking points, two of the competitors lost exactly the same number of marks, viz. sixteen, and they have decided to share the honour of holding the cup for twelve months. These competitors were only four minutes out on a distance of 140 miles. Result: R. Canham (3½ h.p. Brown) and H. Vowler (3½ h.p. Triumph), equal; W. Canham (3½ h.p. London), 3.

Richmond and District M.C.C.

A petrol consumption test and steering competition will be held on June 28th, when a gold and silver medal will be given to the first and second winners. The meet will take place at the Assembly Rooms, Surbiton, at 10 a.m. A picnic will take place at Leith Hill after the petrol consumption test, and lady friends of the members are invited.

Worcestershire M.C.C.

The first closed hill-climb was held on Saturday last on the Old Birmingham Road, between Marlbrook and the Lickey Monument, near Bromsgrove. There were twenty entries, and the results on formula are as follows:

Three competitors in the Lincolnshire M.C.C. Reliability Trial leaving the Spread Eagle Hotel, Lincoln.

SINGLE-CYLINDER CLASS.

	Fig. of merit
N. C. Pollock (3½ h.p. Rex)	64.23
G. Sanders (3½ h.p. Minerva)	61.26
W. Ward (3½ h.p. Triumph)	57.60
C. A. Williams (3½ h.p. Triumph)	57.56
A. Jennings (3½ h.p. Triumph)	56.20
H. C. Pickering (2½ h.p. Featherweight Rex)	56.10
R. T. Davies (3½ h.p. Triumph)	53.80
L. C. Wakeman (3½ h.p. Ariel)	42.06
W. A. Stuart (3½ h.p. Triumph), traffic stop.	

TWIN-CYLINDER CLASS.

F. H. Southam (5 h.p. Vindec)	58.11
L. Pickering (5 h.p. Rex)	55.68
H. J. Folkes (5 h.p. Rex)	51.02
R. N. Corah (5 h.p. Rex)	50.51
R. T. Wood (6 h.p. N.S.U.)	49.27
E. Burgess (5 h.p. Rex)	44.31
E. J. Smith (5 h.p. Roc)	35.59

Great assistance was rendered by Messrs. Rodway, Denley, and Burgess, who acted as timekeepers, and Mr. J. Weaver, of Bromsgrove, who superintended the weighing.

The special prize for the fastest time in the day was won by Mr. R. T. Wood (6 h.p. N.S.U.); time, 91⅔s.

Competitors in the Western District M.C. (London) Reliability Run to Salisbury and back.

Club News.—

Newcastle M.C.

The result of the reliability non-stop run from Newcastle to Jedburgh and back—a distance of 114 miles over the stiffest roads in the Border counties of England and Scotland—was: 1, Wm. Dunn (3½ h.p. Dene); 2, Isaac Baty (3½ h.p. Dene). Passenger class—T. Lee (Frank Tricar). Mr. Dunn wins the Allan Robson challenge shield. There were twenty competitors.

Scottish Twelve Hours Open Reliability Trial.

The Glasgow and Edinburgh M.C.C.'s have arranged a twelve hours reliability trial for Saturday, the 27th inst., on the same lines as the successful one promoted by these clubs last year. A very fine and interesting route, starting at Glasgow and finishing at Edinburgh, has been marked out, extending approximately to 228 miles. Full particulars and entry forms may be obtained from James S. Fulton, 131, West Regent Street, Glasgow; Campbell McGregor, 2, Greenhill Place, Edinburgh; or A. Allan Hay, 196, Bruntsfield Place, Edinburgh.

Inter-club Meet of the Lincolnshire M.C.C. and Hull A.C.C.

A most successful meet of the above clubs was held at Scawby Gull Ponds on Saturday. It was the second annual fixture of the kind, and was very well attended. After the interesting spectacle of tens of thousands of gulls had been witnessed a photograph was taken for *The Motor Cycle*, and the whole of the riders went on to Brigg and took tea at the Angel Hotel.

To-morrow (Thursday) the Lincolnshire Club has a hill-climb at Alford, and on Saturday one at Lambcroft Hill, Ludbrough. Entries to the hon. sec.

Shrewsbury "Aliens" M.C.C.

This club held its opening reliability run to Aberystwyth and back on the 14th inst., a distance of 153 miles, and the following members took part: Messrs. B. Ommeny (3½ h.p. Rex), C. Rice-Oxley (3½ h.p. Rex), A. Taylor (3½ h.p. Brown), C. Ommeny (3½ h.p. Rex), and J. O. Hughes (2½ h.p. Zedel). The route taken was *viâ* Welshpool, Newtown, Llangurig, through the magnificent scenery of the Plynlimmon district (where, however, the roads were bad and the gradients severe) to Aberystwyth. The return journey was made *viâ* Machynlleth, Newtown, Montgomery, to Shrewsbury. All finished without experiencing trouble with the exception of Taylor, the spindle of his front wheel breaking.

Inter-club Trial in Scotland.

On the 13th inst. the second annual competition for the Hamilton shield took place. The Edinburgh Club, as holders, had the management of this year's event. The test was a reliability trial of 100 miles and a hill-climb. Three teams entered—the holders (Edinburgh), Waverley, and Glasgow. Glasgow only had one starter, so from the very beginning it was almost hopeless. Result:

Edinburgh M.C.C.	4,427 marks
Edinburgh Waverley M.C.	3,765 ,,
Glasgow M.C.C.	973 ,,

Edinburgh M.C.C. was represented by four F.N.'s and one Vindec; Edinburgh Waverley, four Rovers and one Triumph; and Glasgow, one Triumph.

Times on the hill were on the whole very good. The fastest was the Vindec Special; second, F.N.; third, Triumph.

Essex M.C.

The executive of the above club has postponed the date of the annual 200 miles non-stop trial from July 4th to August 29th.

Leeds M.C.C.

The winner of the cup and gold medal in the Leeds-Edinburgh and back twenty-four hours run is F. W. Greenwood (3½ h.p. Rex). Gold medals: 2nd, G. E. Tennant (5 h.p. Vindec), lost 2 points; 3rd, Eric Myers (3½ h.p. Triumph), lost 58 points. The following finished in twenty-four hours, and will receive bronze medals: H. D. Shaw, E. Slater, A. H. Hyde, and J. Percival (all on 3½ h.p. Triumphs).

There will be three classes in the Sutton Bank hill-climb next week-end—singles (standards), singles (T.T. or specials), and twins. Final to be run off by the three winners; handicap for final to be made by the difference in time, the fastest to allow the others the difference in their class time. Entries will be taken on the spot.

Walthamstow M.C.

The above club was strongly represented at the Woodford meet on the 20th inst. The very tasteful appearance of the cars, tricars, and bicycles was very creditable to the members, and was greatly appreciated by the public all along the route. The first prize for decorated motor cars was received by the president of the club (Dr. Stanley Owen), and the prize for the best decorated motor cycle (with forecar) by R. J. Lisles. Another special typical representation was by the hon. sec., J. W. Percival, who, attired as a French army officer, carried a lady passenger in his tricar dressed as "Britannia," and displayed the familiar words "Entente Cordiale."

Southern M.C.

A 100 miles reliability trial and speed-judging contest was held on Saturday last for the Howlett challenge cup and gold medal.

Tricars and cars: This competition was decided over a circular course of thirty-three miles which was covered three times. The winner was judged by even running over the three circuits, making non-stop runs. The winner proved to be Mr. Harrison (9 h.p. Riley car). Two tricarists competed, viz., W. Portwine (5 h.p. A. and A.C.) and S. Goodley (4¼ h.p. Phœnix).

100 miles motor cycle reliability trial for gold medal and certificates over the same course at same time. Entries: T. E. Goodley (3½ h.p. Triumph), E. K. Davies (3 h.p. Davies), J. Wheeler (3½ h.p. Triumph), G. Connor (2¾ h.p. Twin Fairy), and G. Aldington (5 h.p. Twin Kerry). The winner of this event was J. Wheeler, and second T. E. Goodley.

Harry Martin rode a machine fitted with Continental tyres when he won the ten miles motor cycle handicap at the Stadium on Saturday, the 13th inst.

The latest form of Palmer Cord tyre is provided with a flap on the inner side to prevent the tube being nipped. Motor cyclists will be much interested to hear of this improvement, as it tends to add further to the excellence of the tyre mentioned above.

Inter-club meet of the Lincolnshire M.C.C. and Hull and East Riding A.C.C. at Scawby Gull Ponds last Saturday.

LETTERS TO THE EDITOR.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Motor Cycling in Southern Nigeria.

[3365.]—In your issue of May 6th you publish a letter from Mr. J. H. Greenup, in which he states that he is not aware of another motor cycle on the Coast.

I do not know whether Mr. Greenup is referring to the Gold Coast simply, or whether he means West Africa generally, which is known as the Coast. If he alludes to the latter, I beg to inform him that there are several motor cycles being ridden here in Lagos, including three or four Moto-sacoches and a twin-cylinder Fairy. W. A. WILLIAMS.

Lagos.

Petrol in One Gallon Tins.

[3366.]—*Re* letter 3363, "Petrol in Small Cans," I am sure there are hundreds of riders who are waiting for these to come along; they are needed, and badly needed, too. There are many garages who will not sell less than two gallons, and there are many riders, like myself, who have not capacity for that quantity, and we do not want to buy the tin every time. I have never had the experience of being served with paraffin up to date, but it is not too late with the present deplorable state of affairs. I rode to London last week, and having to call for petrol at Stamford I found the Pick Motor Co. most obliging. They will serve with half a gallon of Shell if needed. SHEFFIELD.

Front Wheel Stands.

[3367.]—*Re* front stand mentioned in *The Motor Cycle* by "Ixion," I have one on my machine which I made like an ordinary carrier. It clamps on the back stays with wing nuts; reversed, it makes a stand for testing; it is instantly detachable. I have two pedal bicycle rear axle steps screwed on front spindle, which fit the same wing nuts used at the back. The stand is simply taken from back, sprung on steps on front forks, wing nuts screwed on, and front wheel is immediately jacked up, and the necessary repairs can be done. The stand can then be replaced. With this class of carrier only one is required, as it answers the purpose of carrier and stand for either front or back wheel. I have had it on my machine for about four years, and have seen no stand on the market to equal it for convenience. Should anyone feel interested in it, I should be pleased to show it.

W. ANTROBUS.

Gudgeon Pin Fastenings.

[3368.]—Having read with great interest "Ixion's" remarks *re* gudgeon pin set screws falling out, I enclose for your inspection a snap-shot, which will, I think, serve to further substantiate his claims. The photograph, as you will no doubt be aware, is of a 3¼ h.p. 1905 Rex cylinder. A large piece has been knocked clean out of the front of it, also a corresponding piece out of the bottom of the piston. Strange to relate, the pieces of the cylinder and both set screws were found in the crank case, in the recess between the flywheel, whilst the fragments of the piston cannot be found anywhere in the engine, so I infer that they are somewhere on the road. The owner drove the machine home six miles after the smash without any harm resulting, bar, of course, the loss of a large quantity of oil. H. R.

Warning.

[3369.]—In *The Motor Cycle* of May 20th I noticed an advertisement in the "Tyres for Sale" column. I wrote and asked the advertiser to send them through, and I would send the money by return. I got a reply, stating if I sent 9s. 9d.—half purchase money—they would be sent off at once. I sent the 9s. 9d. by return, and I have not heard any more of either goods or money. I have since posted two letters to the same address, and had them returned, marked "Gone away." I write this to caution other readers from sending money on trust. J. N.

[Readers are recommended to adopt the deposit system when dealing with unknown advertisers.—ED.]

Motor Cycle Speedometers.

[3370.]—*Re* "W. H. C.'s" query. I have had in use for 600 miles a Simplex speedometer, Goodlad's patent, sold by Gamages, registering up to forty-two miles per hour. This was supplied with a clip not suitable for the 1908 Triumph front forks, so I returned it for a suitable one. The meter is driven by the front wheel rim. I notice "W. H. C." says this system is useless, but he is wrong, as mine has proved most satisfactory. The range up to forty-two miles per hour ought to be sufficient for anyone off a racing track.

CHARLES B. GRACE, A.M.I.E.E.

Sidecars.

[3371.]—I should like Mr. Montgomery to modify his insinuations against the medical profession. Until that happens I can but treat his letter [No. 3362] with contempt. A debator must have few points to impress when, in discussing general matters, he descends to pseudo personalities and the like. The aspect he has taken gives a different and unnecessary complexion to the subject.

It appears that he found a cap which would fit him, and wore it, but I am sorry he misreads my words in such a way as to let himself write as he does.

B. RICHARDSON BILLINGS.

[Personal recriminations must now cease. Any further personalities will not be published.—ED.]

Standard Machines in Competition.

[3372.]—We are very pleased to see that you have taken up the question of specially built machines being used in hill-climbs and other competitions, as it is obvious that a strongly built, fully equipped touring machine is heavily handicapped when competing against a machine with light tyres, and weight cut down in every direction.

We believe that we are almost the only firm who have been successful in competitions during the last few years, and who have never built a machine which has varied in the smallest detail from our standard specification.

We would welcome any scheme which would enable a responsible official to select a machine from stock for the makers to enter in a reliability trial, hill-climb, or speed test.

It has always been a matter of surprise to us that the customary rule with reference to standard machines has not been more rigidly enforced, as it is certainly unfair to the public to advertise performances which could not be accomplished on a fully-equipped standard touring machine of the same make. PHELON AND MOORE, LTD.

Soldering Petrol Tanks.

[3373.]—May I be allowed to state the *modus operandi* when *I* solder a petrol tank? I proceed as follows: First I drain off as much petrol as will run out of the tap. Then I *open* all the air holes, etc., and shake the tank well. This fills the tank with pure petrol vapour. Next step is to *close* all the air holes, and commence operations. I use a blow lamp, and the heat expands the gas in the tank, which burns at the hole to be mended, materially helping to melt the solder. EUCHLORINE.

A Smart Accessory.

[3374.]—In "Occasional Comments" "Ixion" describes, under the heading of "A Smart Accessory," a generator bracket just evolved by the Advance Co., which savours to some extent of an arrangement of my own, carried out and in use by me during the past two years. Some time ago I sent you a photograph and drawing of lamp bracket and generator clip, which I hoped you would have illustrated for the guidance of any riders preferring a different method for lamp and generator attachment from that usually in vogue.

I now send you a sample of my clip—an early pattern. The clips I have made since are much stronger, to obviate breaking through vibration (which happened once). I also devised a double holder for a generator on either side. The flat or lower plate is cut across with ends meeting under top tube, the entire affair being held firmly by the usual screws, and is as good as if solid. This enables the holders to be slipped into position without disturbing tank. It is rather difficult to understand from what "Ixion" says how a tongue bracket can be incorporated with the usual tank clip, seeing that the latter is merely a band and lugs of very light material, usually about $\frac{1}{16}$in. thick, and certainly not strong enough to be continued as a generator support.

My clip is suited for the Triumph machine, taking advantage of the narrow front end of the tank, thus enabling the generator to be kept close to the machine, and more secure from injury in case of a fall than when clipped to outside of front forks. I consider a clip that has no connection with the tank fittings preferable, as it can be removed at any time or adjusted to suit circumstances.

I think a front wheel stand is hardly necessary. Front tyre punctures, as "Ixion" says, are comparatively few, but if one does happen the easiest method is to lay the machine down on the grass by the roadside or against a bank. This leaves the front wheel free to be rotated for manipulating the tyre cover. Of course, this method would hardly apply to machines fitted with accumulator ignition, on account of the acid running out of the batteries, but with a magneto such an objection is non-existent. R. G. LINDSAY.

[What becomes of the petrol if tank is almost full, and what about scratching the paintwork of tank, bending levers, etc.?—ED.]

A Medico's Experience in our Colonies.

[3375.]—I believe it will be of some benefit to colonial readers, as well as to manufacturers in England, to read this letter of mine *re* motor cycling in a colony.

I bought one of the very best machines on the market, and it cost me, landed here, together with a few spare parts, about £70. I have up to now ridden on it 205 miles, and the following are the conclusions I have come to: (*a*) The engine and magneto are perfect; (*b*) the two-speed gear is good; (*c*) the frame and wheels are bad; (*d*) the screws, nuts, pedals, and accessories are rotten.

I must first say that my machine was bought from a firm who specialise in a double gear on the epicyclic principle. They procure an engine of a first-class make, and fix it with their gear and the magneto to a frame of some kind without looking at all at particulars. Evidently, the machine is meant only for home use, but if the frame and parts were better it would go splendidly in the colonies.

To give you an idea of how carelessly things are done at home, I received the machine badly packed, there being a big dent in one of the tanks. The makers who sent it direct to my agent forgot to fit a sparking plug, sent a footrest to be fixed with a broken lock nut collar, and a lubricating oil tap without a pin to limit the movements of the plunger.

I started the machine by making a new lock nut collar for the footrest and using a spare sparking plug. Everything went all right on the flat, but as soon as I started on the hills the pedal of the low gear began to bend. It bent so much that I had to give it to a local blacksmith to straighten and to rebraze it. By fixing a wire between the low gear pedal and the brake pedal I partly overcame the difficulty.

Two or three days afterwards the tap of the lubricating tank, which had been sent without the pin, turned inwardly, and all the oil ran into the engine. The engine smoked for about half an hour without me knowing the cause of it, and it thereby overcame that difficulty.

Next day I noticed all the screws of the low gear were loose, and there was no way of fixing them, because if tightened they would not allow the free play of the gear. One nut even got lost. I replaced the lost nut with a spare, and with some tinkering I fixed the screws in such a way that they will not get away all together. Nevertheless, the moving of the screws is bound to wear out the threads.

The following day the handles came off, one spoke of the back wheel broke, and the steering fork began to move. I put the handles in my pocket and left the spoke to itself, hoping to replace it. The moving of the steering fork is beyond remedy, because the screw at the top which fixes the cones is too big and the thread is partly worn. I fixed it in some way, but the vibration has already damaged the inferior cone of the steering fork.

Next day when the boy was cleaning the motor cycle the oil tap turned inward again, and all the lubricating oil ran into the engine. Starting of engine was impossible.

Arthur W. Bentley, the Land's End to John-o'-Groat's record holder on his 3½ h.p. Triumph motor bicycle, at John-o'-Groat's House Hotel.

After much tinkering and speculating I recognised the fault by finding the oil tank (which I had filled the day before) empty. Of course, everybody would tell me it is very easy to get the oil out by opening the tap underneath the engine. Yes, theoretically, it is all right; but practically, it is all wrong. As I said before, the engine is a splendid one, but the frame is bad, and the engine was not meant for the frame. In order to make it possible to use a good engine the makers did not trouble about the oil tap, and they fixed it against the frame in such a way that it cannot be moved unless one breaks the tap or the frame. At last, after vainly trying to burn the oil, and exhausting all available muscular strength of myself and three of my servants by turning the starting handle, I hit upon the good idea of unscrewing the nut of the oil tube; then, by again turning, pushing, and tugging at the handle I got the engine to spit out the excess of oil; it was then an easy matter to burn the rest.

Next day the gear case for the magneto transmission broke. Now I wonder what will come next, because I cannot say I have given a thorough trial to the machine, having only ridden 205 miles.

The engine, of course, will not give any trouble, and the gear little, but all the rest—frame, wheels, pedals, operating brake and gears, nuts and screws, etc.—will all give trouble sooner or later.

Of course, I never mentioned that a hand brake is continually out of action, that the belt went into bits after 150 miles, that the double coil horn does not give any sound when

it is necessary to use it, that the cyclometer was not a proper fit, that the carrier could not in any way be attached to the machine, that a nut fixing the silencer was too loose and got lost, because I am informed that these are faults partly independent from the makers, and that every machine is liable to them (!)

Now may I be allowed to ask, Is it right for a manufacturer when sending a first-class machine 6,000 miles away, to be used on rough country, with uneven roads, to be ridden over sand and over stones, over breakneck hills and over marshes, to be pushed, swum, or carried over spruits, torrents, or rivers—is it right for him to be so careless? How long would it take him to see if the nuts fit tightly, if the screws have good threads, if the spokes are sound, if the handles are good, if the pedals are strong, if the taps can be opened, if there is anything on the machine which he has forgotten, or which is broken? Why does he not think for a moment that we colonials at such enormous distances from home cannot get these things replaced, and that we do not mind a few pounds more or less so long as we get something good, something reliable, something which does not need tinkering at? Let us hope he feels some remorse if some accident happens as the result of his laziness and carelessness

A. BONFA, M.D.

Umzinto, Natal.

Carnmoney Hill-climb.

[3376.]—"Wellwisher's" letter in your issue of the 10th inst. might have caused him to be credited with what his *nom de plume* claims had he been frank enough to sign his real name. As it is, I can only give him credit for being not devoid of humour, though he writes more in a facetious vein.

Carnmoney Hill, if not equal, say, to Ballybannon, was at least sufficiently long and steep to make a difference of time amounting to minutes in the lower powered cars.

I hold no brief for motor cycle competitors or the M.C.U.I., so I pass his criticisms without comment. My only interest in his correspondence lies in his reference to the winning car—a 14-16 h.p. Argyll—which I entered and drove in the above competition. For his complimentary remark I thank him, at the same time wishing to rectify his incorrect suggestion *re* special gear box. The gears, as indeed all other parts of the car in question, including engine, were, and are, standard, and this can be proved quite easily.

"Wellwisher" might very well wish to learn that it is correctly-designed, carefully-built engines, developing power up to their maximum, that provide speed (with proper transmission, of course) for hill-climbing, not "special gear boxes."

H. T. FERGUSON.

Wanted, Eisemann Magneto Hints.

[3377.]—I have been a reader of your most interesting journal for some time, and I have noticed particularly one thing. Every other week almost we have something or other about every make of magneto, except the one I have myself—the Eisemann. My machine is a 3½ h.p. N.S.U., and my magneto has given me the greatest satisfaction since I got my machine last summer. We have simply awful roads in this part of Ireland (Ballinasloe), and my N.S.U. went perfectly the other day through nearly thirty miles of mud without a front mudguard to protect it. The agents from whom I got the machine put in ordinary stays to my spring front forks, taking away, of course, all "spring" out of them, and I had to take off the whole front mudguard while negotiating the proper one. Nevertheless, although buried in mud and slush, my Eisemann fired perfectly.

I wrote trying to get a book on it, but could not, and the only book the N.S.U. people had, described a magneto that had two carbon brushes, etc., evidently not my type (1907). I am always reading tips about other magnetos, but never can see anything about the Eisemann. Will someone please tell me how to flush out bearings with paraffin? Or should this be done as I see so often recommended for the Bosch magneto? Any information will indeed be gladly received.

Here, miles away from even a botchy repairer, many and wonderful have been my experiences as a beginner forced to find out everything for himself. I so enjoy your articles on novices' adventures, having had so many little trials myself. Once (please do not turn away in scorn, oh ye old hands!) I rode for three days on a badly punctured steel-studded Peter Union back tyre (extra thick, as I weigh 15½ stones), blaming my spring forks, the roads, etc., everything but the right thing. And at last it burst on me what was wrong on going over a large stone and getting a large dent in my belt rim, jamming it down on the belt. On another occasion, riding a three year old machine in learning, after finding out *ad nauseam* how to stop every way but with the regular levers, I was brought to an ignominious stop on a hill entering a town. Soon surrounded by an interested crowd, who intently watched my perspiring efforts, I was oracularly informed by an "engineer" present, who ran the oil engine at the local water works, that he thought she wanted "ile." I found at length that a brass tube in the inlet pipe had shifted internally, and when the lever showed "full on" for the mixture, in reality it was "full off"!

CONNACHTMAN.

["Motor Cycles and How to Manage Them" contains a detailed description of the Eisemann magneto for motor cycles.—ED.]

EXPERIENCES WANTED.

"Tourist" would like readers' experiences of hotels in the Lake District and Southern Scotland where motor cyclists are welcomed.

T. S. L., Homerton, would like users' experiences with the Nala two-speed hub. He has one fitted to a sidecar, and would like to see how readers' experiences compare with his own.

Will the makers of the front wheel stand who sent two prints showing it fitted to the front wheel of a motor bicycle provided with spring forks kindly communicate with the Editor, as their address has unfortunately been mislaid?

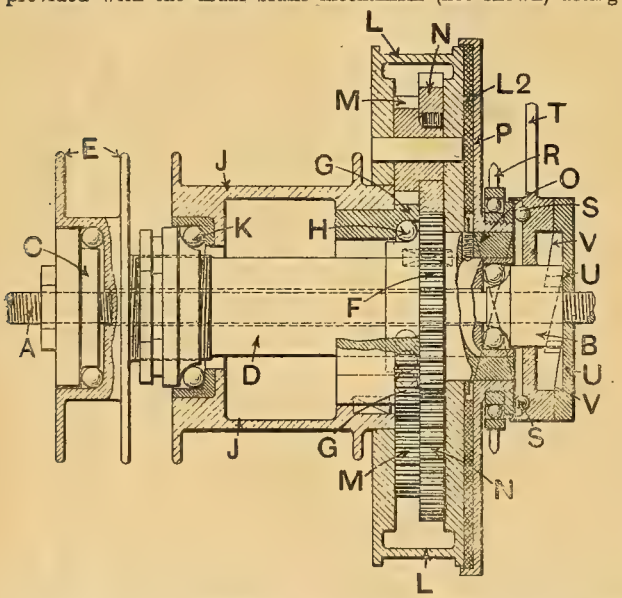
The New York Motor Cycle Club held a successful competition on Fort George Hill early this month. A. G. Chapple (6 h.p. N.S.U.) on the left won his class. In the right hand photograph are Mr. Hendee, the maker of Indian motor cycles, and Mr. Hedstrom, the designer. This make of machine won four classes.

RECENT PATENTS

By ERIC W. WALFORD, F.C.I.P.A.

A Two-speed Gear Hub.

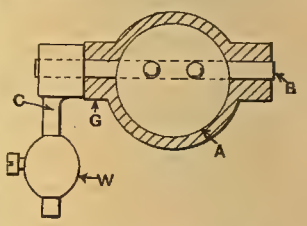
MR. A. D. POWELL, of Burgess Engineering Works, Leicester, has developed this invention with the object of providing a substantial construction which will require but little alteration to existing cycles, will provide a two-speed pedalling gear, will enable the pedals to drive the engine only (if necessary), and will support the driving belt pulley in a more substantial manner than usual. The fixed spindle A is mounted in the fork ends, and a cone B and C is arranged at each end. On ball races on these cones is mounted a cylinder D, with—at, say, the left-hand end—flanges E, suitably spaced, to which are attached the spokes supporting the belt pulley or the like. Although the belt pulley is mounted at one end of the hub, the bearings B and C for the same are at both sides, and a suitable support is thus provided. Keyed upon this cylinder is the driving pinion F of the gear, and the driven pinion G is mounted upon a ball bearing H on the driving pinion F. The driven pinion is attached to the hub shell J, and consequently the hub shell is supported on this side by its ball bearing H. At the opposite side the hub shell is mounted upon a ball bearing K running upon a cone adjustable on the cylinder D. The drum L carrying the intermediate pinions M and N is mounted upon bearings upon the driving pinion and the hub shell, and it is provided with the usual brake mechanism (not shown) acting

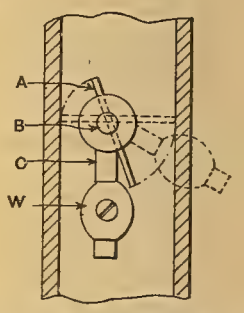


on its periphery for holding it stationary, whilst one face L^2 is formed as a clutch face. The driving pinion is extended as at O, and it is squared or provided with key-ways, upon which is mounted the movable clutch member P. On this movable clutch member P is carried the pedalling free-wheel clutch R, and against one face is mounted a thrust ball bearing S, which lies between that face and a movable clutch actuating member T. This movable member T may co-operate with a fixed member U, each having inclined faces V, or cams, so that when the movable member T is rotated slightly in relation to the fixed member U, which is fixed to the spindle, the cam faces ride over one another and impart a lateral thrust to the movable clutch member P. A solid gear is obtained by actuating the clutch P L^2, and a reduction, according to the gear ratios, is obtained by freeing the clutch and holding the drum L stationary by means of the brake band. By leaving the clutch out and the band brake disengaged, the pedalling gear can operate the belt pulley, and consequently the engine, without driving the hub shell. In this way the engine can be started without moving the machine. Again, the pedalling gear can operate the hub shell through the two-speed gear, as will be clearly seen. It will be seen that the belt pulley is supported in a very substantial manner, and that the hub shell is arranged practically centrally, necessitating slight alteration in fitting to existing machines.

A Simple Governor suitable for Tricars.

IN this invention, which has been protected by Mr. R. Howard, of Gonvena, Wadebridge, the flow of the mixture is caused to act upon an unequally pivoted and adjustably counterweighted throttle plate. The plate A corresponding to the section of the pipe to which it is adapted, is attached to the spindle B in such a way that the area of one portion of the plate is greater than the area of the other portion, the portions being divided by spindle B. The spindle B is made so that it can rotate in the pipe in which it is fixed at right angles to the flow of gas, and is extended outside the pipe through a gland G, and on the extension of the spindle B is fixed, at an angle of about twenty-five degrees with the plate, an arm C upon which is mounted on a movable and adjustable weight W, the arm C and weight being thus outside the pipe and the plate inside. The weight W is movable along the arm C so as to increase or decrease its distance from the spindle A, and so as to increase or decrease its leverage upon said spindle. The action of the governor when applied to the intake pipe of a petrol engine is as follows: When the arm C with weight is not held up by hand, or other mechanical means, it falls by gravity to its lowest position moving the plate inside the tube in such a position that the explosive mixture can pass without hindrance, and the engine may thus get an impulse for two or three strokes. As the engine increases in speed the velocity of the mixture passing through the pipe increases also, and causes an upward pressure on the underside of the larger portion of the plate A When the pressure reaches a predetermined point it causes the spindle to rotate, carrying with it the arm and weight. The plate now blocks the passage (see dotted line) of the mixture to the engine, and the engine decreases in speed. As the speed drops so does the suction causing the flow of gas or mixture, and the weight overcomes the pressure on the under surface of the plate, causing the spindle to again rotate and free the passage for the gas through the pipe. The engine again receives a few impulses and the action is repeated. When it is not required to govern or regulate the engine this arm can be held up by mechanical means, operated by the driver of the engine or the tricar to which it is adapted.





We know of a very good man in the motor cycle industry who will shortly be disengaged. He would be an acquisition to any firm who wished to extend their business in the West of England. Letters should be addressed West of England, care the Editor, *The Motor Cycle*.

LONDON TO EDINBURGH.

The most remarkable and unequalled results

are scored by

"Shamrock-Excelsior Tyres."

"Shamrock-Gloria Belts."

Read what successful Competitors say:

Mr. I. B. H. Davies:
"I used the S.G. belt throughout the run. It has not stretched at all, although my weight is fourteen stones. The belt appears to me to absorb less power in passing round the pulley than any of my former belts, with a noticeable absence of cracks on the top side."

Mr. J. Winslow:
"I had a splendid run from Edinburgh and return. I used your S.E. tyre on back wheel, and did not touch it all the way through. It has now done over 1,500 miles, and is in good condition. The same S.G. belt carried me through both ways, and is still good."

Mr. P. Janson:
"I am pleased to inform you of the splendid manner in which your belt and tyres carried me through the run. No doubt they had a great deal to do with my success in obtaining a gold medal, as I had no trouble or punctures whatever from start to finish."

S. G. Belts were also used by: Mr. W. H. Wells, Mr. A. G. Reynolds, Mr. S. G. Frost, Mr. E. Gwynne, etc., etc.

Mr. A. J. Sproston:
"S.G. belt on my Vindec Special stood splendidly, going through without attention of any kind. In spite of harsh treatment while returning it completed the 1,100 miles without giving slightest cause for complaint."

Mr. O. C. Godfrey:
"The S.E. tyres fitted to my Twin Rex gave absolute satisfaction throughout the whole of the journey. I must really compliment you upon making such a fine tyre. For the S.G. belt also I have nothing but praise."

Mr. W. A. Sale:
"The S.G. belt for the L.-E. run gave perfectly satisfactory results. I used the same belt riding home. It was only a ⅞in. belt on a 5 h.p. Vindec twin, and it still looks like new. One cannot expect anything better."

Mr. H. G. Cove.
"Very pleased with Shamrock Excelsior tyre."

Mr. W. Chater Lea:
"The S.E. tyres were used on a Chater-Lea carette, and were very satisfactory."

Mr. J. S. Harwood:
"Your S.G. belt and rubber-studded tyres gave perfect satisfaction, and required no attention from start to finish. This is the first occasion on which I have gone through a twenty-four hours' event without tyre trouble."

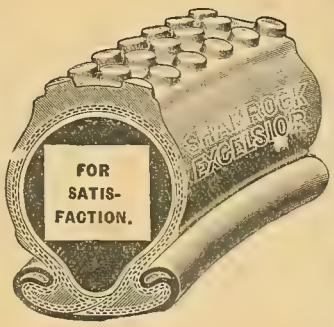
Mr. Chas. J. Seed:
"I had the good fortune to use one of your belts, and had not the slightest trouble with it."

Mr. William Pratt:
"The S.E. tyre went through the whole journey without a single puncture. On greasy roads and wet tramlines I could not detect the slightest sign of sideslip."

50% used S. G. Belts.
(The remainder divided amongst 5 different other makes.)

33⅓% used S. E. Tyres.
(The remaining honours divided amongst 10 tyre manufacturers.)

Sole Manufacturers:
THE HANOVER RUBBER Co.,
29-31, Old Street, London, E.C.



MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All adver isements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, on the Friday morning, or if sent to London, by the Thursday afternoon previous to the date of publication.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

All letters relating to advertisements must state distinctly under what heading they appeared, and date of issue.

MOTOR BICYCLES FOR SALE.

HALIFAX.—Twin-cylinder Onaway, spray, specially low, suit short rider; £22 10s.; spring forks.

HALIFAX.—4 h.p. Alcyon, fine 26 by 2½ tyres, twin, spring forks, N.S.U., two-speed gear, light and low; £23 10s.

HALIFAX.—Twin-cylinder magneto Vindec Special, condition exceptional; cheap, £35; spring forks.

HALIFAX.—2¾ h.p. Phelon and Moore, two-speeds, 26 wheels, carry heavyweight; £27 10s.; any trial.

HALIFAX.—Twin-cylinder Hadley, 4½ h.p., Calmon and Clinchers, 26 wheels, special finish; £17 10s.

HALIFAX.—6 h.p. twin Antoine, 26 by 2¼ tyres, R.O.M. ignition, guaranteed running order; £22.

HALIFAX.—Lightweights, in going order, 25s. deposit and six monthly payments of 22s. 6d. secures 2 h.p. Quadrant, 1¾ h.p. Minerva, 2 h.p. Minerva, 2 h.p. Kelecom, 2 h.p. Quadrant, 2 h.p. Humber, 2 h.p. Universal, and 2 h.p. Princeps—Address below.

HALIFAX.—45s. deposit and six monthly payments of 29s. 6d. secures 2¾ h.p. Excelsior, 3 h.p. Humber, 2¾ h.p. Minerva, 2¾ h.p. De Dion, 2¾ h.p. Hobart, 3 h.p. Lloyds, 2¾ h.p. Minerva, 3¼ h.p. Rex, 2½ h.p. Aurora, 2¾ h.p. Kerry, 3 h.p. M.M.C.; all guaranteed running order.

HALIFAX Motor Exchange.—Cash, exchange, or extended payments. High-grade machines purchased for spot cash.—16, Westgate, Halifax. Telephone, 766. Telegrams, Perfection.

Can't get Delivery?

—try the PREMIER.

These are in Stock TO-DAY—New Machines.

TRIUMPH, 1907 magneto	£39 0
N.S.U., 3½ h.p., 1908 magneto	40 0
N.S.U., 3½ h.p., 1908	36 0
N.S.U., 6 h.p. twin magneto, 1908	54 0
N.S.U. Lightweight, magneto, 1908	34 10
F.N. Lightweight, 1908, magneto, spring fork	35 0
REX Featherweight, 1908, magneto	26 5
REX Tourist, 3½ h.p., 1908, magneto	36 15
MOTOSACOCHE, 1908, lightweight	30 0
WARWICK, 1908, 4 h.p., magneto, Roc (licensed) clutch, two-speed gear	47 5
VINDEC SPECIAL, 1908, 3½ h.p., magneto, Truffault spring forks	48 10

Your second-hand machine taken in part-payment for any of the above. We allow at least as much as you would obtain by private sale, and you are saved all the worries and vexations inseparable from the sale of a second-hand motor cycle.

All the SHOP-SOILED and SECOND-HAND MACHINES on the following list are cheap. Some of them are simply wonderful bargains. They are absolutely reliable, and covered by the **Premier certificate of fitness.** Take advantage of "The Motor Cycle" deposit system, and have one on approval.

N.S.U., new, 1908 Roc clutch, two-speed gear, cost £70	£55 0
N.S.U., 6 h.p., magneto, two-speed, with fine sidecar	44 0
N.S.U., 3½ h.p., 1908, with sidecar	40 0
REX, 1908, 3½ h.p. de Luxe, two-speed gear, magneto, accessories	40 0
WARWICK, 4 h.p., magneto, 1908, soiled	43 0
ROC, 5 h.p., magneto, Roc clutch	32 0
TRIUMPH, 1907, 3½ h.p., magneto	35 0
N.S.U. Twin, 6 h.p., magneto, two-speed gear, splendid machine	35 0
N.S.U., 3½ h.p., magneto, 1908, soiled	35 0
REX 1907 Lightweight, not used	22 0
VINDEC SPECIAL, 3½ h.p., magneto, Truffault forks, adjustable pulley	30 0
TRIUMPH, 3 h.p. magneto	30 0
VINDEC SPECIAL, 1906, 5 h.p., Truffault	27 0
ZENITH Bicar, 4 h.p., Whittle belt, free engine	22 0
MINERVA Twin, 4½ h.p., spring fork, absolutely perfect	22 0
ROC, magneto, Roc clutch, spring fork, good condition	22 0
EXCELSIOR, 2¾ h.p.	7 0
KERRY, 4½ h.p., Twin, two-speed	19 0
MINERVA, 2 h.p., spring forks, B100 saddle, tyres like new	9 10
WHITLEY, 3½ h.p.	10 0
REX Tricar, faultless, running splendidly	23 0
RILEY, 5 h.p., 1907 Tricar, two speeds, spring frame, wheel steering, coach built, three brakes, run 250 miles, cost £90, grand bargain	55 0

Ask for full particulars of any of the above.

Others constantly arriving. Complete list free on application.

Let us give you details of the

WARWICK CAR-STYLE MOTOR CYCLE.

Hand-starting, ball bearing 4 h.p. engine, Bosch magneto, spring forks, Roc (licensed) clutch, epicyclic two-speed gear, started and driven like a car, several seasons in advance of ordinary motor cycle design. **Price 45 guineas.**

See our advertisements (in this supplement) of **Premier Searchlight, Premier Spare Tube Carrier, Premier Stands and Carriers,** and **Premier Road Clearer.**

——Ask for our LIST of TYRE BARGAINS.——

NEW Peter Union Covers, Fresh Stock.

24×2¼	£0 18 6	From 4/- to
26×2¼	1 1 6	7/- less than
26×2½	1 5 0	ordinary price

NEW Peter Union Tubes, 8/- to 10/6.
NEW Clincher Tubes 7/6, etc., etc.
Sent on Three Days' Approval.

PREMIER ACCUMULATORS.

Sent on Three Days' Approval.
Specially heavy plates—do not disintegrate.
10 amp. ..... 9/6 } List on
20 amp. ..... 12/6 } application
Send for pamphlets "On the Choice of a Motor Cycle," "Motor Cycles of 1908," "Everything for the Motor Cyclist."

PREMIER MOTOR AGENCY,
Aston Road, BIRMINGHAM.
Telephone: 4310. Telegrams: "Primus," B'ham

MOTOR BICYCLES FOR SALE.

1907 Twin Rex, in good condition.—Boutle, 7, Elmington Terrace, Camberwell.

JAP, 2½ h.p., low, Palmers, not done 1,000 miles; £15.—Berwick, Fenny Stratford.

2¾ h.p. B.S.A., Minerva vertical engine, in splendid order, Dunlops; £15.—Jones, Lichfield.

2½ h.p. Jap Engine Motor Cycle, Clinchers, in good running order; £6 10s.—Jones, Lichfield.

TWIN Rex, 1907, good condition; 18 guineas; buying car.—T. Wild, Moore's Road, Dorking.

QUADRANT-MINERVA, 2 h.p.; £9; make appointment.—F.S., 29, Upper Road, Plaistow.

2½ h.p. Times, Clincher A1, two accumulators, stand, carrier; £15.—Gradior, Stafford.

h.p. Rex, as new, non-skid; £23, or near offer.—No. 140, *The Motor Cycle* Offices, Coventry.

1908 Rex Motor, 3½ h.p., ball bearing, as new; £28, or exchange.—40, Colwyn Road, Leeds.

3¼ h.p. Lincoln Elk, in splendid condition; £15; all particulars.—Jose Jackson, Beaconsfield.

KERRY Lightweight, spring forks, etc., in perfect condition; £11.—171, Church Street, Chelsea.

3½ h.p. Centaure, perfect order, low built, ⅞in. belt; 14 guineas.—R., "Heathfield Lodge," Acton.

DE DION BOUTON, low, long, particulars, post; cheap.—Buick, 9, New Barn Street, Plaistow.

3 h.p. Hobart, recently overhauled, new cover; £9.—Howarth, engineer, Padiham, Lancashire.

TRIUMPH, 1907, magneto, good condition, grand climber; what offers?—Bryant, Haselor, Alcester.

2¾ h.p. Brown, complete, excellent condition, long handles; trial; £15.—B. Kemsley, Epping.

ROC, 3½ h.p., magneto, fitted with 1908 two-speed gear, etc.; £22.—Tandy, Wellington Square, Crewe.

N.S.U., 3½ h.p., 1906, thoroughly overhauled, splendid condition.—Clements, Printer, Chatham.

£1 per month for six months for 2 h.p. Werner.—114, Risley Avenue, Lordship Lane Tottenham, N.

FOR Sale, 2 h.p. Werner, like new, perfect, 19in. frame; £10; exchange.—Robinson, Sandy, Bedfordshire.

GUARANTEED Twin Rex, spring forks; £17; no offers; trial.—Hardy, Carlton Street, Halifax.

3½-4 h.p. Twin Peugeot-Campion, good running order; £17.—Prowse, Cambridge Street, Grantham.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange—16, Westgate, Halifax.

3 h.p. Rex, perfect; £10, exchange less power or push bike.—Hine, Clayhidon, Wellington, Somerset.

£12, or offer.—3 h.p. Fafnir, Chater, Palmers.—Seen, 5, Denmark Street, Charing Cross Road, W.C.

FAIRY Lightweight, two cylinders, perfect condition; £16; approval willingly.—Birt Morris, Bourne.

3½ h.p. Minerva, Chater-Lea frame, in splendid condition; £22.—15, Fengates Road, Redhill, Surrey.

3½ h.p. Kerry, Clinchers, Longuemare, good condition; £12, bargain.—Horncastle, outfitter, Grays.

4½ h.p. Kelecom, nearly new; cost £40, sacrifice £13, genuine bargain.—7, Salisbury Avenue, Barking.

2¾ h.p. Gradior, F.N. lightweight, Palmers, stand, carrier, Brooks, new; £22.—Gradior, Stafford.

MOTOR BICYCLES FOR SALE.

MAUDE'S.—All the undermentioned motor cycles are in guaranteed good running, and can be seen on the road at the address.

MAUDE'S.—Rex, shop-soiled, 1908 model, 3½ h.p., magneto; £27.

MAUDE'S. — Zenith Bicar, two speeds, handle starting, newly enamelled and done up by the makers. Now, ye godfathers, how's this at £27.

MAUDE'S.—Zenith Bicar, 4 h.p., free engine, new rear tyre; £21.

MAUDE'S.—N.S.U., twin, magneto, two speeds, spring forks, with sidecar; £35.

MAUDE'S.—Sarolea, new tyres, Davison tanks, perfect order and condition; £22.

MAUDE'S.—Rex, 1907 model, 3½ h.p., just been overhauled; £18.

MAUDE'S.—Roc, 1908 model, two speeds, 4 h.p., magneto; £38.

MAUDE'S.—Ariel, 3 h.p., B. and B. carburetter, vertical, 26in. wheels, very good condition; £15.

MAUDE'S. — Werner, twin, 26in. wheels, spring forks, spray, accumulator ignition; £20.

MAUDE'S. — Minerva, 3½ h.p., vertical, M.O.V., spray carburetter; £17.

MAUDE'S.—Minerva, 3½ h.p., 26in. wheels, low built; £18.

MAUDE'S.—Minerva, 2¾ h.p., vertical, new tyres, saddle, silencer, and pedals, thoroughly overhauled and re-enamelled; £12.

MAUDE'S.—Clyde, 2¾ h.p., vertical engine, magneto, Longuemare, spray carburetter; £16.

MAUDE'S.—Clarendon, 3 h.p., vertical engine, spray, very good tyres; £11.

MAUDE'S.—Quadrant, 2 h.p., beautiful running, and reliable; £8.

MAUDE'S.—Rex, 50 guinea model, non-skid to rear, Palmer front; £10 10s.

MAUDE'S.—Humber, 2¾ h.p., good condition and order throughout; £8 10s.

MAUDE'S.—Bat, 3½ h.p., Bat engine, Longuemare spray, with sidecar; £25, without £20.

MAUDE'S. — Quadrant, 3 h.p., spring forks, spray; £12.

MAUDE'S.—Rex, 22in. frame, trembler, 50 guinea model; £10 10s

MAUDE'S.—Lloyds, 2 h.p., vertical engine, footrests, spray, 26in. wheels; a beauty, £12.

MAUDE'S.—Rex twin, 6 h.p., cantilever seat, 50 guinea model; £22.

MAUDE'S.—Humber, spray, trembler, 2¾ h.p.; £8.

MAUDE'S.—Zedel, 2 h.p., vertical engine, low built, 26in. wheels, as new; £11; to be recommended as a lightweight.

MAUDE'S.—Jap, Phœnix built, good tyres; £9.

MAUDE'S.—Minerva, 2 h.p., M.O.V., spray; £7.

MAUDE'S. — Rex, 26in. wheels, low built, spray carburetter, footboards; £14 14s.

MAUDE'S. — Bayliss, 3½ h.p., very good tyres; £11.

MAUDE'S.—Another Bayliss, 3½ h.p., special price £8, good running order.

MAUDE'S.—Humber, 2 h.p., trembler coil, chain drive, good running order; £7.

MAUDE'S.—Singer, 2 h.p., magneto, Singer carburetter; £7.

MAUDE'S. — 45s. down and twenty-four weekly payments of 7s. 6d. secures 3½ h.p. Excelsior, 3 h.p. Rex, 2 h.p. Humber, 2¾ h.p. Humber, 2½ h.p. Jap, or 2 h.p. magneto Singer. Delivery upon first payment.

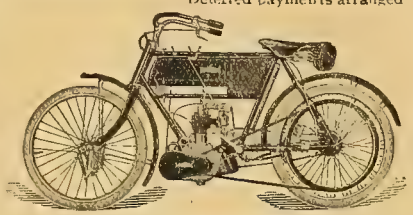
MAUDE'S Motor Mart, Powell Street, Halifax (behind the Victoria Hall), offer without doubt the very best bargains in motor cycles, all of which are guaranteed in good running order before despatch. Write us and let us have your requirements, and we will quote you best terms for exchange or cash.—Nat. tel., 433.

Clearance

We are offering th feollowing machines as a special reduction **FOR CASH** to clear, as we are overstocked. All guaranteed in good running order throughout.

3½ h.p. **EXCELSIOR**	£9	0	0
3 h.p. **CUNARD**	8	0	0
3 h.p. **QUADRANT**	10	0	0
2½ h.p. **STANDARD**	7	0	0
2¾ h.p. **HUMBER**	8	0	0
2 h.p. **HUMBER**	7	0	0
2 h.p. **ORMONDE**	7	0	0
2 h.p. **SINGER**	7	0	0
2 h.p. **QUADRANT**	8	0	0
2 h.p. **WERNER**	8	0	0
3½ h.p. **REX**	12	0	0

Further particulars upon request.
Deferred payments arranged



ARIEL 2½ h.p. LIGHTWEIGHT.

Coil and accumulator ignition	32 Guineas.		
Magneto	37	,,	
3½ h.p. **VINDEC**	£48	10	0
5 h.p. **VINDEC**	53	0	0
5 h.p. **TOURIST**	52	0	0
2¾ h.p. **MINERVA**	29	0	0
3½ h.p. **MINERVA**	32	0	0
4½ h.p. **MINERVA**	39	0	0
7-8 h.p. **MINERVA**	45	0	0
1¾ h.p. **F.N.**	35	0	0
4½ h.p. **F.N.**	50	0	0
3½ h.p. **TRIUMPH**	48	0	0
3½ h.p. **SILVER**	39	0	0
3½ h.p. **BROWN**	37	0	0

Let us quote you for Exchange for any of the above. Prices rock bottom. Cash or Exchange.
Any other make gladly quoted upon request.

TRICARS.

REX Triette, 6 h.p., non-skid	£25	0	0
HUMBER Tricar, chain drive	12	0	0
REXETTE, 8 h.p., twin tyre, two speeds and reverse, water-cooled, wheel steering.	60	0	0

FORECARS, etc.

Nice Forecar, with front brakes	£5	0	0
BAT Sidecar, good condition	4	10	0

SIDECARS.

Let us quote you for Cash or Exchange for a new 1908 Montgomery Sidecar. **Catalogue and terms free.**

MAGNETOS.

GENUINE BOSCH.

D A 1	£4	5	0
D A 2	4	15	0
D A V	6	0	0

Good allowance for your coil and acc. in part payment.

BOSCH PATTERN.

Singles	£2	19	6
Twins	3	19	6

Write for particulars.

TUBES.

FULLY GUARANTEED.

26 x 2in.	6/-	28 x 2in.	7/-
26 x 2¼in.	7/-	28 x 2¼in.	7/6.
26 x 2½in.	8/-	28 x 2½in.	8/-

Immediate Delivery. Approval.

COVERS.

26 x 2in.	16/-	28 x 2in.	17/-
26 x 2¼in.	17/6.	28 x 2¼in.	18/-
26 x 2½in.	21/6.	28 x 2½in.	22/-

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MOTOR BICYCLES FOR SALE.

3½ h.p. Minerva, 1908, magneto, as new; £32 cash.—Glen Bros., Howden.

2¾ h.p. Bat, De Dion; £11 10s.—142, Lewisham High Road, New Cross, S.E.

TRIUMPH, 3 h.p.; cheap; seen after eight. —82, Stondon Park, Brockley, S.E.

2 h.p. Up-to-date Lightweight; £9 10s., or near offer.—3, Shrubland Grove, Dalston.

ROC, 3½ h.p., magneto, free engine clutch, very low, excellent condition; £19 19s. —Below.

WERNER, 4½ h.p., two-cylinder, latest model, separate cylinders, nearly new; cheap, £17 10s.—Below.

MINERVA, 3½ h.p., M.O.V., vertical, 26 by 2¾, splendid order; £16 16s.—41, Skelbrook Street, Earlsfield.

REX, 3⅜ h.p., spring forks, absolutely faultless; £15 15s.—134, Highgate Road, Kentish Town.

3½ h.p. Motor Cycle, good condition; a bargain, £6 15s.; illness.—R. Mower, New Mills.

NEW 3⅜ h.p. N.S.U., magneto, unused; cost £43, accept £34.—148, *The Motor Cycle* Offices, Coventry.

FOUR-CYLINDER 4½ h.p. F.N.; £30; trial by appointment.—Heron, Abbeyfield, Harpenden, Herts.

TRIUMPH, 3 h.p., guaranteed in perfect order; £17 10s.—"Carlton," Warwick Road, Snaresbrook.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. —16, Westgate, Halifax.

£5.—1½ h.p. Minerva, good going order, plenty spares.—Charleston Villa, Border Road, Sydenham, S.E.

TWIN Minerva, perfect condition, two accumulators, lamp, accessories; offers.—18, Newstead Road, Liverpool.

£12.—Minerva, 3½ h.p., throughout, latest Longuemare, exceptionally reliable. — 26, Lansdowne, Bromley, Kent.

MINERVA, 2 h.p., Chater-Lea machine throughout, climb trees; bargain, £7. —458, Merton Road, Wandsworth.

3¾ h.p. Werner, fast, footboards, Palmer cord back, good appearance; £16.—234, Belsize Road, Kilburn, N.W.

FOUR-CYLINDER F.N., 4½ h.p., latest, practically new, guaranteed perfect order; £32.—Sembill, jeweller, Finchley, N.

3½ h.p. Minerva, with sidecar, or without; £15 the two, or separate. — Queen's Arms, Norland Road, Notting Hill, W.

1908 3½ h.p. Magneto Rex, perfect, not ridden 50 miles; bought tricar; sacrifice best offer.—22, Victoria Terrace, Leamington.

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LOW Powerful 3½ h.p. Fafnir, Chater-Lea frame, detachable forecar; £18, close offer.—Edwards, Parade, Cambridge Road, Norbiton.

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3 h.p. Advance, nearly new, adjustable pulley, footrests; expert examination; only £16.—Campbell, 156, Wirtemberg Street, Clapham, S.W.

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1906 2¾ h.p. Brown, brand new condition throughout, starts instantly, fire behind donkey-barrow, climb exceptional hills, very little used; absolute bargain, £14, or near offer.—Stanton, 86, Colvestone Crescent, Dalston, London.

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3½ h.p. Fafnir, as new, low frame; any test or trial; £18, bargain.—2, Upper Kennington Lane, London.

1908 Lightweight Rex, 2½ h.p., just arrived; £21, or two ladies' cycles and cash.—Williams, Cycle Depot, Corwen.

2¾ h.p. Minerva, good condition, fast; £9; seen by appointment. — Ruff, 1, Bournemouth Road, Peckham S.E.

6 h.p. Twin Zedel, low frame, footrests, spring forks, splendid condition; £19 10s.—98, Potternewton Lane, Leeds.

4 h.p. Twin, excellent condition, just overhauled, £14; 3 h.p. Humber, free engine, £12.—Hawkins, Honeys, Twyford, Berks.

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3½ h.p. Rex, excellent condition, just overhauled, one new Palmer tyre; £10; owner buying car.—Wheller, engineer, Yeovil.

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3½ h.p. Magneto **REX**		18	10
3½ h.p. **REX**, spray, 2½ frame		11	10
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3¼ h.p. **REX**, 22 frame		11	10
2½ h.p. **MINERVA**, 26 × 2.....		11	10
1¾ h.p. **EXCELSIOR**		5	10
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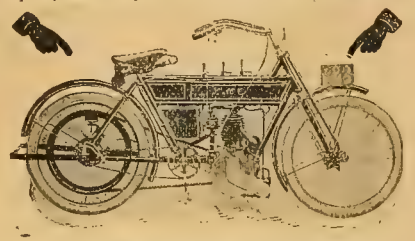

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3½ h.p. Kerry, in perfect running order, low, long handle-bars, footboards, starting handle, stand, new tyre, etc.; £15; getting twin.—Motor, Glenrosa, Coleshill Road, Teddington.

2½ h.p. Minerva, Chater-Lea, new Stanley Dermatine, lamp, and horn, good hill-climber; £11 10s., or good push bike part payment.—Clarke, 130 Manor Street, Clapham.

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3½ h.p. Kerry, low, fast, ¾in. Stanley-Dermatine, long handle-bars, new piston and rings, adjustable pulley, Longuemare, spare cover and belt; £13 13s.; trial.—Leader, Picardy Schools, Belvedere.

4½ h.p. Twin Minerva, spring forks, N.S.U. speed gear, R.O.M. synchronised, perfect order, also patent sidecar; £38, or nearest offer; would separate; appointment. —251, Tottenham Court Road, London.

5 h.p. Twin Vindec, Nala two-speed and free engine, magneto, Truffault spring forks, Vindec adjustable pulley, lamp, spares, in first-class order; lowest £32. — Coxen, Fife Road, Kingston-on-Thames.

2¾ h.p. Brown, Napier green, gold lines, spares, and replacements readily obtainable, only £12; 1½ h.p. lightweight Hudson, De Dion engine, £9; both in running order.—Dancaster, 240, High Street, Acton, W.

REX, Rex, from 25 guineas and your old machine taken in part payment; send for list of both Triumph and Rex from their agents, Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

3 h.p. Quadrant, spring forks, splendid condition, fast, powerful, reliable, Longuemare carburetter, Clincher tyres, 26in. wheels; bargain, £13 10s., or near offer. — Motor, 86, Colvestone Crescent, Dalston, London.

MAGNIFICENT Aero-Special Rex, 12-14 h.p., in nearly new condition throughout, guaranteed speed 30 miles an hour; bargain at £75, part exchange cycle entertained.—Bedwell, Cherryhinton Road, Cambridge.

3¾ h.p. N.S.U., magneto, spring forks, 26in. re-inforced Peter-Union and Shamrock studded tyres, carrier, stand, lamp, inflator, pulley, spares, tools, perfect; £27 10s., near offer.—Hewitt, 22, Rosemont Road, Acton, W.

3 h.p. Motor Cycle, Bat-De Dion Bouton, spring frame; price £25; in thorough working order, or exchange for motor car of good make, cash adjustment.—Apply, Chadwell Heath Joinery Co., Chadwell Heath, Essex.

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MOTOR BICYCLES FOR SALE.

FAIRY, 2½-3 h.p., as new; £16.—Tyler, Earl's Colne, Essex.

3½ h.p. 1907 Triumph, magneto; 30 guineas. —Wauchope's, 9, Shoe Lane, E.C.

3½ h.p. Quadrant, thorough going order, good condition; £15.—The Salisbury Garage, Salisbury.

3½ h.p. N.S.U., low frame; going cheap at Wauchope's, £15.—9, Shoe Lane, Fleet Street, London.

2¾ h.p. Werner, a powerful and reliable machine; £7 10s. — C. Wayman, 124, Dennett's Road, S.E.

CENTAUR, 3 h.p., variable pulley, Price's stand, B100, registration; £8. — Reid, Constabulary, Dublin.

3 h.p. Quadrant, in good running order; £12 12s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

QUADRANT, 3 h.p., 1906, spring forks, Liberty sidecar; separate.—25, Tamworth Park, Mitcham.

4 h.p. Ormonde, round tank, very fast; £8 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. —16, Westgate, Halifax.

£6 10s.—1¾ h.p. Vaf, Hobart frame, wants re-bushing, otherwise perfect.—Hodges, Lansdowne, Bournemouth.

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F.N. 1¾ h.p. Lightweight, brand new, specification as per maker's advertisement; what offers?—Moss, Wem, Salop.

3 h.p. Bat, De Dion engine, absolutely perfect; £12 15s., bargain.—Primrose Cottage, South Norwood Hill, S.E.

5 h.p. Light Tourist Vindec Special, in condition as new; £35.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

QUADRANT, 3 h.p., spray carburetter, long handles, footboards, etc.; £12, or offer. —69, Hill Rise, Richmond, Surrey.

£22.—Motosacoche, new February, 1908, rubber studded cover back; any trial.—M., Sydenham House, Clacton-on-Sea.

TRIUMPH, 2½ h.p. Jap, fast, reliable, splendid condition; £14; money wanted.—Bass, 15, Rectory Road, Barnes, S.W.

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2½ h.p. Peugeot, Chater-Lea, Longuemare, just thoroughly done up; only £11.—2, Lower King Road, Kingston-on-Thames.

TRIUMPH, 3½ h.p., 1907, magneto, spring forks, carrier and stand, etc., guaranteed perfect condition.—Moss, Wem, Salop.

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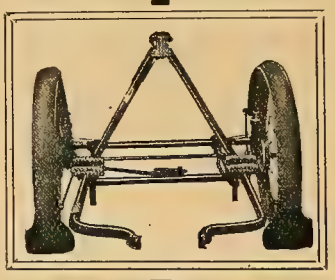

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HALIFAX.—Twin-cylinder 8-10 h.p. Rexette, special car, two speeds, carry three anywhere; £47 10s.

HALIFAX.—4½ h.p. air-cooled Stevens tricar, 26 wheels, very low, tyres almost new; £19 10s. — Halifax Motor Exchange, Westgate, Halifax.

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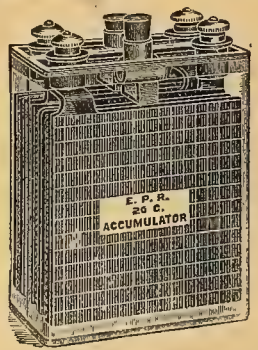

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C.I.E., 5 h.p., Phelon and Moore speed gear, coach-built, excellent; giving up; £32.—Wilton Lodge, Halifax.

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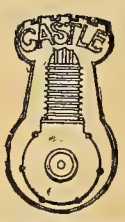

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4½ h.p., w.c., wing radiators, two-speed, coach-built fore, bucket seat back, chain drive, 3½ gallons petrol capacity, two accumulators, B. and B.; seen any time; trial run given; £30, or near offer.—30, Forest Hill Road, S.E.

LUXURIOUS Tricar, 10 h.p., two-cylinder, three speeds, reverse, seats three, quite up to date, capable doing anything, going anywhere; best offer £60, real bargain.—Seen, appointment, 26, Archer Street, Camden Town, London.

TRICAR, open frame, two-speed, wheel steering, bucket seat, bonnet, side and rear lamps, 2½ Dunlop tyres, smart appearance, complete, less engine; £10, or best offer (write full particulars).—B., 71, Winkfield Road, Wood Green, N.

HUMBER, 1907, practically new, 6½ h.p., water-cooled, wheel steering, motor car tyres, open frame, bucket seats; cost £140, sacrifice 55 guineas, exceptional bargain; only wants seeing; photo.—Stacy Marks, artist, Leamington Spa.

9 h.p. Riley 1907 Tricar, three speeds and reverse, just overhauled and painted, tyres excellent condition, first-class running order, two brass headlights; expert examination invited; can be seen by appointment; £75.—213, Lower Richmond Road, Putney.

TRICAR Sale.—We are clearing out 9 h.p. Riley, three speeds and reverse, 5 h.p. Excelsior, three speeds, 4½ h.p. Phœnix, two speeds, 4 h.p. Kelecom, 5 h.p. twin Kerry tricars; take any reasonable offer, cash, or exchange; all bargains.—128, High Road, Tottenham.

ZENITH Spring Frame Tricar, 6 h.p. twin cylinder Jap engine, Oppermann three-speed gear, chain drive, comfortable footboards, latest model, 72 guinea machine, used for a few trials only; £50 cash to clear, thorough bargain.—Zenith Motors, Ltd., Finsbury Park.

SINGER 9 h.p. Twin-cylinder Tricar, 1907 pattern, water-cooled, coach-built body, three speeds and reverse, absolutely faultless condition, just delivered from the makers after being thoroughly overhauled and make equal to new; cost, with accessories in 1907, £180, price £80.—No. 131, *The Motor Cycle* Offices, Coventry.

QUADRANT Tricar, 6 h.p., two engines, chain drive, two-speed, air-cooled, coach-built bucket seats, wheel steering, fitted Palmer cord and Shaw's non-skid, in perfect going order; ten miles trial; £34, or will exchange motor bicycle and cash; must be low.—M. Martin, Mason's Cottages, Shuttlewood, Chesterfield.

GARRARD Tricar for Sale, 4½ h.p. engine, three-speed gear, worm drive, clutch, etc., all in perfect order; trial with pleasure, £25; Invicta Trimo, 4½ h.p. Aster engine, three-speed gear, chain drive, all in good order, £20, or near offer; 7 h.p. Panhard, thoroughly overhauled, gears new and bearings new, Krebs carburetter, good looking car, and goes well, tyres all good, £50.—Martin, High Street, Lewes.

COACH-BUILT Open Frame Tricar, wheel steering, 5-6 h.p. water-cooled engine, pump circulation, two speeds, free engine, Chater-Lea dashboard radiators, chain drive, large brass acetylene headlight, apron, spare cover and tube, 750 by 85 grooved Dunlop car tyre to driving wheel, Palmer cords (26in. by 2½in.) front, luggage carrier, electric horn, new rubber mats, everything perfect; £35 lowest.—Seen at 295, High Street Lewisham, S.E.

VINDEC Special, twin, with magneto, converted to three wheels (two in front), large mudguards, all three tyres perfect, with Anglian two-speed gear, also perfect condition, chain drive, 10in. leather clutch, brakes on all three wheels, only wants basket seat in front to make perfect tricar; reason for selling, am going abroad; cash £35.—Telephone, North, 59.—Clarence Wakley, 63, Park Street, Regent's Park.

CARS FOR SALE.

h.p. De Dion, three speeds and reverse, four-seater, Dunlop tyres, in good condition and fine running order; £75.—82, Queen's Road, Peckham, S.E.

10 h.p. Two-cylinder Car, by known maker, three speeds and reverse, two-seater, wants overhauling; £22, or offer.—Box 152, *The Motor Cycle* Offices, Coventry.

6 h.p. Rover, late 1907, special body, Cape hood, Lucas lamps; £100; any trial; expert examination.—Roberts, Strathmore, Washington Road, Worcester Park.

7 h.p. Oldsmobile, in good condition, magneto and accumulator ignition, Cape hood, glass screen, lamps, in good going order; £28, a real bargain.—Horsey, Blandford.

10-12 h.p. Siddeley, four speeds, side entrance, Lucas headlights, side and back lamps, Stepney wheel, tools and spares, engine and gears as new; £185.—Jones, Lichfield.

6½ h.p. Aster, two-seater, three speeds and reverse, cardan drive, equal artillery wheels, thoroughly overhauled and re-painted French grey; any trial; price £45.—Northern Supply Co., 56, Deansgate, Manchester.

h.p. Riley Car, drip lubricator, 700 by 80 grooved tyres, large toolbox, water gauge, acetylene lamps, electric back lamp, cost over £200, not run 1,500 miles, in first-class condition; £115.—153, *The Motor Cycle* Offices, Coventry.

LIVERPOOL.—1907 Gregoire, 11 h.p., two cylinders, magneto, thermo, side entrance, four-seater, fast, silent, as new; trial; £145, take modern cycle part payment, cost £230.—Lamb, Cigar Merchant, 19, Water Street, Liverpool.

12 h.p. Gillet-Foster Four-seated Car, three speeds and reverse, live axle, artillery wheels, three large lamps, and spares; a bargain, £40, or near offer, or exchange good twin cycle and cash.—651, Seven Sisters Road, Tottenham.

h.p. Riley Car, hood, 85 mm. grooved back tyres, plain fronts, acetylene side lamps with generator, mudguard extensions, toolbox, underscreen, horn with Grack attachment, electric tail lamp; £120.—154, *The Motor Cycle* Offices, Coventry.

15 h.p. Coventry Humber, fitted with Major Saul Samuel's screen and hood, accumulator (special Castle coil) and magneto ignition (Simms-Bosch), seats five comfortably, 815 by 105 tyres, lamps, etc., in excellent condition throughout; price £245.—56, *The Motor Cycle* Offices, Coventry.

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WHEN Visiting London stay at Waverley Temperance Hotel, 17, Euston Square. Bed, breakfast, attendance from 3s.

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BRIGHTON. — Black Lion Garage, back of Sea View Hotel. Black Lion Street, fifth turning from Aquarium on right, along front; specially for motor cyclists; repairs on Sunday.

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LOST, near Hatfield, on London-Edinburgh run, inner tube, etc.—Kindly communicate with P. Janson, 23, Rathcoole Gardens, Hornsey.

SITUATIONS WANTED.

YOUNG Engineer, keen amateur motor cyclist, desires situation in trade, drawing office, and workshop experience.—G. Pattinson, Alexandra House, Featherstone Street, Roker, Sunderland.

GENTLEMAN wishes to place his son in motor repairing works, holds driving and theoretical certificates, and has good knowledge of motors, must be within daily access of Balham.—18, Boundaries Mansions, Balham.

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INSURANCE.—Please write for particulars of 30s. inclusive motor cycle policy.—Bass, Ongar.

HUGH J. BOSWELL, Insurance Broker, Norwich, issues all classes of policies for motor cycles at lowest possible rates; inclusive policy, 20s.; fire insurance only 2s. 6d. for £25, or 3s. 6d. for £35.—Write for particulars.

If you ride a Motor Cycle you will be interested in the "TEE BEE" Booklet, describing the famous

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Tee Bee Stand	12/6
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A GOOD COMBINATION

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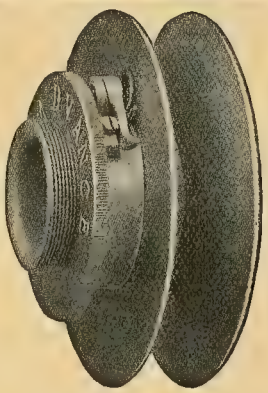

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No alterations required to fit.
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MOTOR and Cycle Business for sale, situated, on corner at four cross roads, large stock, splendid position, good paying concern.—Write, 63, Pelham Road, Wimbledon, S.W.

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ACCUMULATORS Repaired promptly, any make; reasonable charges, best work; estimates given; full value for your old accumulator in exchange for our new "Mayfair" accumulators; special 15 amp., 10s. 6d.; 20 amp., 15s.; guaranteed one year.—Fellows, 49, Hertford Street, Mayfair.

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UNITO Cycle Coupling, for connecting any ordinary pedal cycle to motor cycle.

THE Unito connects the steering and ensures faultless alignment.

THE Unito is so constructed that side strain and lean of machines is entirely obviated.

THE Unito is adjustable to accommodate differences in wheelbase and wheel and frame dimensions.

DON'T Buy a Sidecar before you know the advantage of having a

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2½ h.p. Smith and Dowse Engine and carburetter, sound; 35s.—61, Bath Road, Hounslow.

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7 h.p. Twin-cylinder Antoine Engine, with carburetter; £9 10s., or exchange for higher power.—Hewitt, 39, Lonsdale Street, Belfast.

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WERNER Engine, just re-bored, new piston, rings, and all bearings, contact breaker and silencer; £2 10s.—Wyatt, 11, Neal Street, Long Acre, London, W.C.

KELECOM Engine, 4½ h.p., carburetter, silencer, perfect running order; too powerful for owner; £8.—J.E.S., 113, Kingsland Road, New City Road, Plaistow.

ENGINES.—Roc 1908 4 h.p. ball-bearing engine, 83 by 90; English manufacture throughout; immediate delivery.—A. W. Wall, Ltd., Roc Motor Cycle Works, Birmingham.

ENGINES.—4 h.p. Twin, with outside flywheel, clutch, and starting handle, suit tricar or boat, £5 10s.; 3½ h.p. M.M.C., inter-cooled head, £3 7s. 6d.—Rose, 85, Stratford Road, Birmingham.

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BOOTH.—Twin Antoine, new, £8 5s.; 5 h.p. water-cooled Antoine, new, £8 5s.; 6 h.p. Avon, water-cooled, M.O.V., £6 5s.

BOOTH.—2¾ h.p. Noble, £3 5s.; 2½ h.p. Jap, £3 5s.; 2¾ h.p. Noble, £2 2s. 6d.; 3 h.p. Rex, £3 5s.; 1½ h.p. Minerva set, tank, etc.; £3.

BOOTH.—Other engines taken in exchange. —Booth's Motor Exchange, Wade Street, Halifax.

4½ h.p. Rover Engine, clutch, carburetter, coil; £12.—W., Meadow Croft, Westerham Hill.

2¾ h.p. De Dion Engine, in excellent condition; only £3. — H., 16, Windsor Street, Chertsey.

2 h.p. Simms, magneto, complete, with carburetter; £2.—A. McGowran, Union Street, Coventry.

4-5 h.p. Simms Engine, M.O.V., water-cooled, quite new, and fitted high tension magneto; £11.—Farrar.

2½ h.p. Quadrant Engine Sets, cylinder, piston, connecting rod, crank cases, flywheels, exhaust valve, 37s. 6d. per set; 3 h.p. Quadrant sets, as above, 45s. set.—Farrar.

2¾ h.p. King Engine, vertical, fitted contact breaker, driving pulley, good puller; £3.—Farrar.

3¼ h.p. De Dion Pattern Engine, fine condition, £3 10s.; 2¾ h.p. ditto, 50s.—Farrar.

3½ h.p. Standard Engine, vertical, will take trailer up most hills; £3 15s.—Farrar.

3 h.p. Quadrant, just overhauled, £3 10s.; 1¾ h.p. Minerva set, engine, carburetter, tank, etc., £3 10s.—Farrar.

2 h.p. Minerva Engine, M.O.V., £3; 3 h.p. N.S.U., crank case, complete, perfect, 25s.—Farrar, Square Road, Halifax.

5½ h.p. Twin Zedel, as new, roller bearings, etc., spares; bargain, £7 10s.—Tew, 79, Bromley Road, Walthamstow.

2¾ h.p. De Dion Engine, water-cooled, with carburetter and coil, in faultless condition; £5 5s.—84, High Street, Daventry.

3½-4 h.p. Twin Peugeot Engine, with pulley, in splendid condition; bought twin; a bargain, £6 10s.—221, Cheltenham Road, Bristol.

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A FEW 80 by 80 Oracle Engines, new (Brown pattern), mechanical valves; £4 each, a chance of a life time; approval two days against cash, returnable.—L.A.C., 187, Gray's Inn Road.

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FARRAR.—New inner tubes, fully guaranteed, not porous rubbish; 26 by 2, 7s.; 26 by 2¼, 7s. 6d.; 28 by 2, 7s. 6d.

FARRAR.—Tyres, fully guaranteed; 26 by 2, 16s.; 26 by 2¼, 17s. 6d.; 28 by 2, 16s. 6d.; 24in. same price.

FARRAR.—Tremendous stock Continental tyres; your old tyre accepted in exchange; list free. — Farrar, Square Road, Halifax.

28IN. by 2in. Wired Cover, new, 12s.; 26 by 2¼in. beaded cover, 6s.—6, Poulton Road, Southport.

PALMER Motor Cycle Tyre, 26 by 2½, ribbed, new; 15s.—Baythorpe, Balcombe Place, Balcombe, Sussex.

MAUDE'S.—Fully guaranteed tubes, 26 by 2in., 6s.; 2¼in., 7s.; 2½in., 8s.; 28 by 2, 7s.; 2¼, 7s. 6d.; 2½in., 8s.; approval willingly.

MAUDE'S.—Covers, 26 by 2in., 16s.; 2¼, 17s. 6d.; 28 by 2in., 17s.; 2¼in., 18s.—Maude's, Powell Street, Halifax.

MOTOR Cycle Covers, beaded and wired-on, 15s. each; 24 by 2¼, 26 by 2in., 26 by 2¼, 26 by 2½, 28 by 2½, all guaranteed.—Wauchope's, 9, Shoe Lane, Fleet Street, E.C.

TYRES.—Pair Clincher Reno covers and tubes, 26in. by 2¼in., lot £1 5s.; brand new Michelin cover, with Sawyer studded band, 26 by 2¼, used 400 miles, £2.—8, Lupton Street, Kentish Town.

Reg. No. 291289.
2/6 each Rivet.
Contacts vastly superior to platinum, cures misfiring.
Any parts fitted by return of post.

MAGNETO SCREWS, Complete, to fit BOSCH MAGNETO D.A. 2. Old pattern short screws or new pattern long screw and nut, **5/6** pair. NO TROUBLE. EVERLASTING WEAR. Post free home or abroad. Write for particulars and testimonials, too numerous to publish.
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Old Magneto Screws refitted, **2/6** each.

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Compression means Power.

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Repairs and alterations to all makes of motor cycles.

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AT LAST. A long felt want in the shape of a carrier for spare tubes for motor cycles has arrived. Far better than the old and barbarous method of carrying tubes in the tool-bag. Fits on front forks. Lined with felt.

Prices: Quality A 7/6, B 4/6.

1st quality superior box and lined two colours 2nd quality lack enamelled and gold transfer. Belt boxes to match. Will take 9ft. 1 or 1in. **A QUALITY 8/6: B QUALITY 5/6.** Trade terms upon request. Immediate delivery. Nat. Tel. 433.
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TYRES.

BOOTH.—Peter-Unions, 24 by 2½, 28 by 2¼, 15s. 6d.; Royalty covers, 26 by 2, 12s. 6d.; 2¼, 13s. 6d.

BOOTH. — Ten shillings allowed for old cover in exchange for Shamrocks, Palmers, Goodrich's.

BOOTH.—Tyres, best make, 26 by 2, 16s.; 2¼, 17s. 6d.; 2½, 21s.; 28 by 2, 16s. 6d.

BOOTH.—Best tubes, 26 by 2, 7s.; 2¼, 7s. 6d.; 2½in., 8s. 6d.; 28 by 2, 7s. 6d.

BOOTH. — All tyres sent on approval.—Booth's Motor Exchange, Wade Street, Halifax.

MACINTOSH Covers, 26 by 2, 2¼, 15s. each; and one Palmer cord, 26 by 2¼, new, but shop-soiled, 30s. to clear.—12, Kilbrack Road, Beccles.

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CLINCHERS.—Special 2½in. covers, to fit 2in. or 2¼in. rims, 25s. each; don't be under-tyred. It's false economy.—Farrar.

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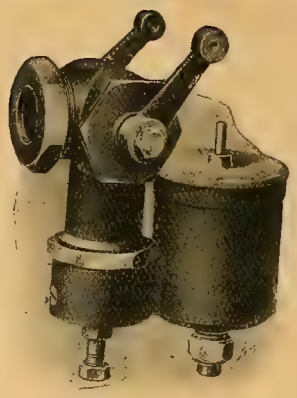

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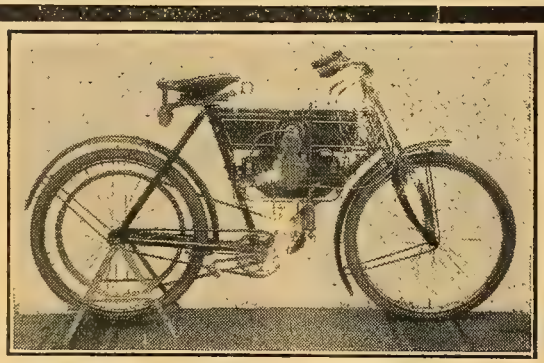

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"It may interest you to know what satisfaction the Fairy Motor (2½ h.p.) is giving me out here.

The roads are very bad as compared with English ones, and on average of 15 miles an hour is the utmost a large 17 h.p. car can run.

The little Fairy climbs the hills about here with ease, some parts of which are 1 in 5 or 6. This may seem steep, but is a fact. She only needs a touch of the pedals to help her out."

FURTHER PARTICULARS CAN BE HAD ON APPLICATION TO

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OFFERS WANTED

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1907 second-hand free engine 5½ h.p. De Luxe
1905 second-hand single cylinder 3¾ h.p. Rex
1906 second-hand twin cylinder 5½ h.p. Rex
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Write for list of machines, all above must be clered at some price.

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English Made Throughout

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Finest Leather and Best Hard Steel.

Ensure positive safety on any condition of road.

PULLMAN'S NON-SKID BANDS

You can have them vulcanised to your own cycle tyres at 17/6 per wheel.

WESTBROOK MILLS,

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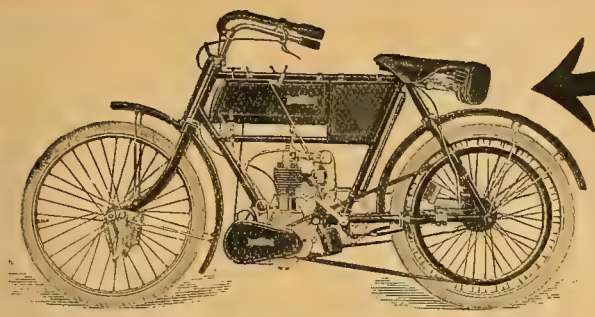

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MOTOR CYCLE WITH MAGNETO IGNITION

is a strong, serviceable, fully equipped mount, a wonderful hill c[illegible] and capable of speeds from four to thirty-five miles per hour. Spr[illegible] forks and every up-to-date improvement fitted.

IN RECENT CONTESTS HAS BEATEN MACHINES OF FAR GREATER NOMINAL POWER.

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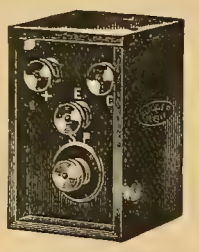

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2in. x 4in. x 6in. high.
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In buying Coil or . . Accumulator, go . . FIRST for QUALITY.

A small saving in first cost is no compensation for roadside worries.

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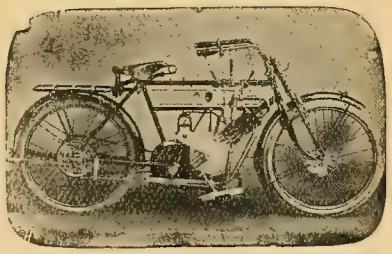

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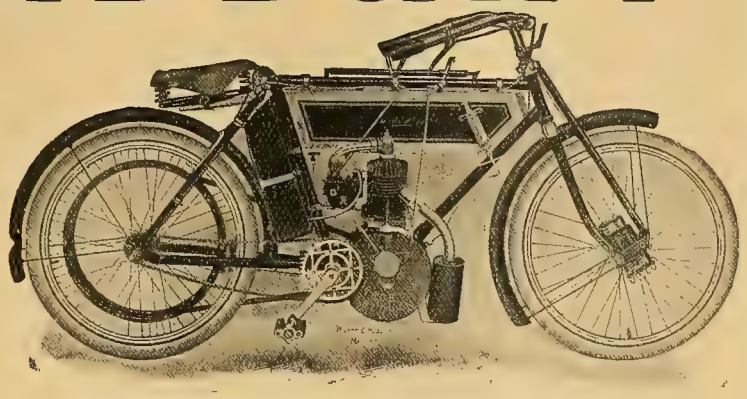
We claim the following advantages over motors of any other type.

Po verful Vertical Engine. Strongest Pattern Frame with all Straight Tubing. Engine Case forms basis of Frame. Perfect and Permanent Alignment. Long Bearings of Phosphor Bronze. Mechanism easily accessible. It runs smoothly and quietly, and every Engine gives its advertised power. Less Vibration than any other Motor of same power. The Best Hill Climber. Perfect Balance.



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2¼ h.p., £25; 3 h.p., £32; 3½ h.p., with spring fork attachment, £40.
4½ h.p. Motor Fore Car, open frame, water cooled, two speeds, free engine £85.

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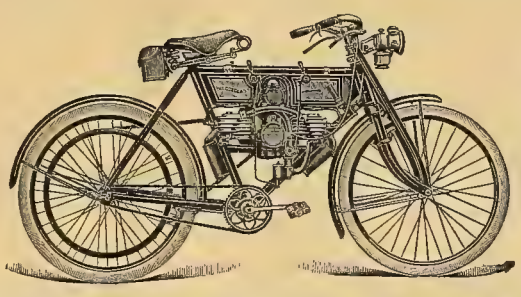
Price—
30 Guineas.
2¾ h.p. Twin-cylinder.
Bosch H.T. Magneto.
High-grade fittings.

Send to the makers for booklet—



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THE SIMPLEST EXPEDIENT ON A JOURNEY.
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Send for List of New and Second-hand Machines.

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FURTHER SUCCESSES OF

The BROWN MOTOR BICYCLE

Thursday, 5th May, in the Welsh A.C. Motor Cycle Hill Climb at Carmarthen, Mr. B. Trevor Davies, on a 3½ h.p. "BROWN" Motor Bicycle, did FASTEST TIME OF THE DAY.

Monday, 8th May, in the Lincolnshire M.C.C. Reliability Trial (about 126 miles), Mr. E. R. Cole (Sleaford), and Mr. R. N. Morley (Leadenham), on Single Cylinder "BROWN" Motor Bicycles, secured NON-STOP AWARDS.

Saturday, 30th May, in the Coventry Motor Club run from Coventry to Holyhead, Mr. R. G. Thomas, on his 3½ h.p. "BROWN," was awarded a certificate for NON-STOP RUN.

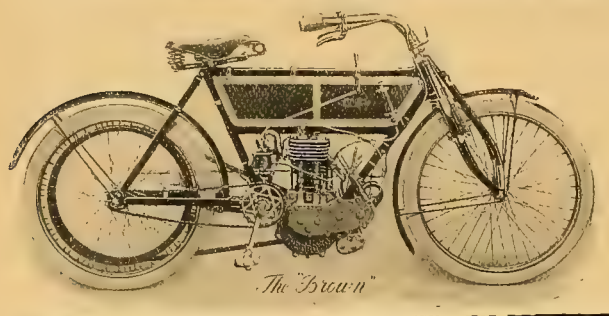
Saturday, 16th May, in the Liverpool M.C.C. Hill Blimb, Mr. H. Brookes, on a "BROWN" Motor Bicycle, secured SECOND PLACE.

Saturday, 16th May, in the Western District Motor Club Reliability Run from Hounslow to Bath, a distance of 188 miles, Mr. H. Kirk, on a "BROWN" Motor Bicycle secured SECOND PLACE.

In the M.C.C. Hill Climb at Sharpenhoe on Saturday, May 2nd, the "BROWN" Motor Bicycle did FASTEST TIME in the Single Cylinder Class, WON the Single Cylinder Handicap, and did FASTEST TIME OF THE DAY with the exception of one TWIN Cylinder. The "BROWN," however, beat thirteen Twin Cylinder Machines.

In the Essex M.C.C. Open Hill Climb at High Beech, on Saturday, 16th May, the "BROWN" Motor Bicycle secured THREE FIRSTS and TWO SECONDS OUT OF FIVE EVENTS.

In the Auto-Cycle Union's Open Hill Climb at Sutton Bank, the "BROWN" Motor Bicycle secured a FIRST and SECOND OUT OF TWO EVENTS.



Could there be stronger evidence of the sure merit of "BROWN" motor bicycles than the above? Don't you think it would be to your interest to have all particulars of the "BROWN" before deciing on your choice of a machine? We are certain it would. Write us now for the "Book of the 'BROWN' Motor Bicycle."

3½ h.p., £37. 5½ h.p. (twin), £50.

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The Difference

between the light given by

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REGISTERED TRADE MARK

MOTOR CYCLE LAMPS (above) and ordinary motor cycle lamps (below) means the difference between safety and danger.

MR. W. H. WELLS, the well-known motor cyclist, says of "AUTOCLIPSE" Lamps—"Although near-sighted, I can see the road perfectly for 100 yards ahead." The long distance rays of "AUTOCLIPSE" Lamps means safety—practically an insurance—as any obstacle can be seen far enough in advance to enable the rider to "slow up." These long distance rays can, however, be entirely eliminated when passing through towns or traffic by means of the Patent Self-Eclipsing mechanism, leaving only the diffused light, which is quite sufficient for immediate surroundings, the full illuminating power being immediately resumed whenever desired.

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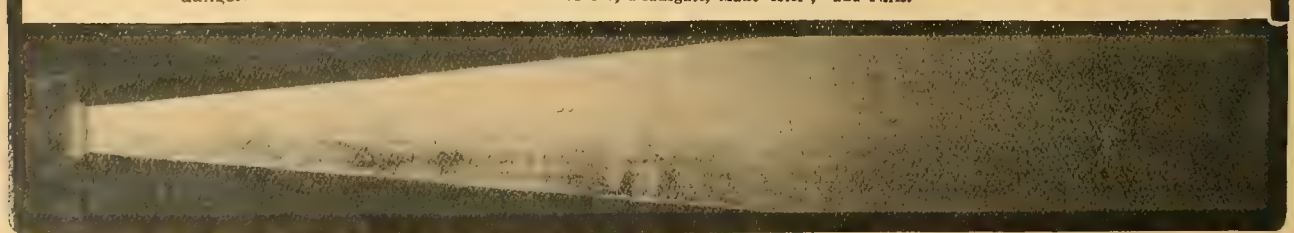

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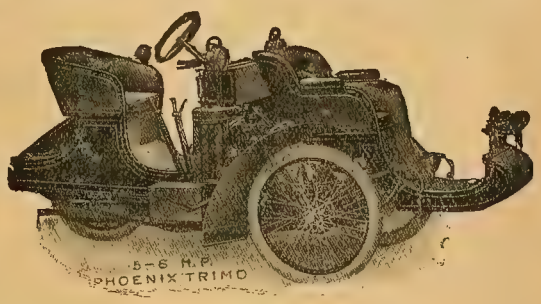

Yours sincerely, H. COLE,

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GRADUAL PAYMENT TERMS ARRANGED.

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THE L.M.C.

3½ h.p. Single Cylinder.

RIGHT AHEAD.

MADE FASTEST TIME.

FIRST ON FORMULA.

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BEAT ALL COMERS

including twin-cylinder machines.

At the Birmingham M.C.C. Hill-climb, Rose Hill (Worcs.), May 2nd, 1908.

A.C.C. QUARTERLY TRIAL, APRIL 29th, 1908, both L.M.C. machines MADE A NON-STOP RUN.

Designed by Mr. W. J. LLOYD (late Director of the Quadrant Cycle Co., Ltd.) Designer of the

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IMPORTANT TO RIDERS OF QUADRANTS (Birmingham make).—L.M.C. SPARES AND ENGINE REPLACEMENTS for these machines can be supplied from stock. PROMPT DESPATCH. LIST FREE. We have several excellent second-hand 3 h.p. and 3½ h.p. Quadrants (Birmingham make) for disposal. Re-plated and re-enamelled as new. Full particulars on application.

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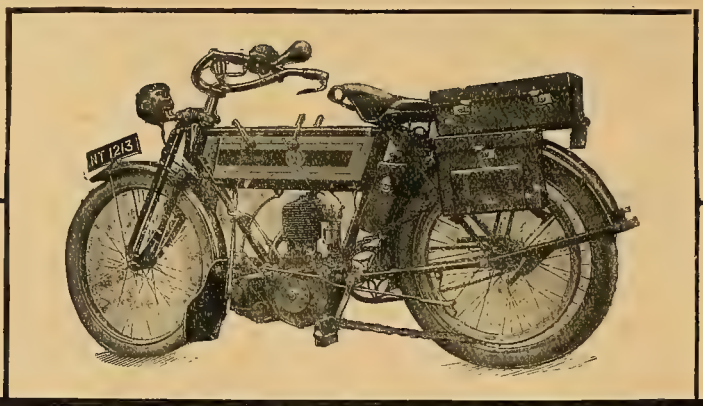
In answering either of these advertisements it is desirable that you mention "The Motor Cycle."



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Do not load your cycle with bundles, but have the available space equipped with our Carrier, Pannier, or Frame Bags. We specialize on Bags of suitable sizes and shapes for luggage conveyance, and can fit up your cycle most effectively. Each Bag is made of finest stout quality Brown Canvas on Special Fibre Board—is Waterproof and Dustproof—is capacious, light, strong and neat in appearance. We also fit strong locks and good straps for affixing firmly to frame—ensuring safety and silence when riding. Prices on application.

Ask TO-DAY for our List and details of Motor Cycle Bags, etc.

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The Saddle Specialists,.....Birmingham.

Brooks Motor Cycle Pannier Bag No. 9478.

This bag is made of finest quality waterproof canvas on special fibre board. Adaptable for tools and spares or clothing. It is fitted with strong lock and is attached by straps to carrier and down stays on either side of machine. An expanding pocket on front is available for maps. Supplied in pairs or singly.

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End-to-End Record.

Marvellous Performance by an Amateur.

Mr. Arthur W. Bentley, an amateur rider, mounted on a Triumph 3½ h.p. Motor Bicycle, started from John-o'-Groat's to lower the existing End-to-End Record. He reached Land's End in 41 hours 28 minutes, reducing the previous record time by no less than 7 hours 8 minutes.

886 miles in 41 hours 28 minutes on a single cylinder 3½ h.p. Triump Motor Cycle.

This Record was officially timed:

TRIUMPH MOTOR BICYCLE	Record	-	41	hours	28	mins.
Previous „ „	„	-	48	„	36	„
Motor Car	„	-	42	„	5	„

June 5-6.

M.C.C. London-Edinburgh, 24 hours.

24 Triumphs finished in schedule time.

All these were Amateur Riders.

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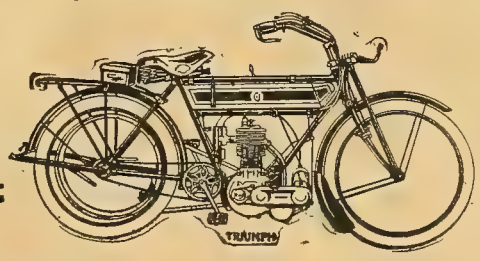

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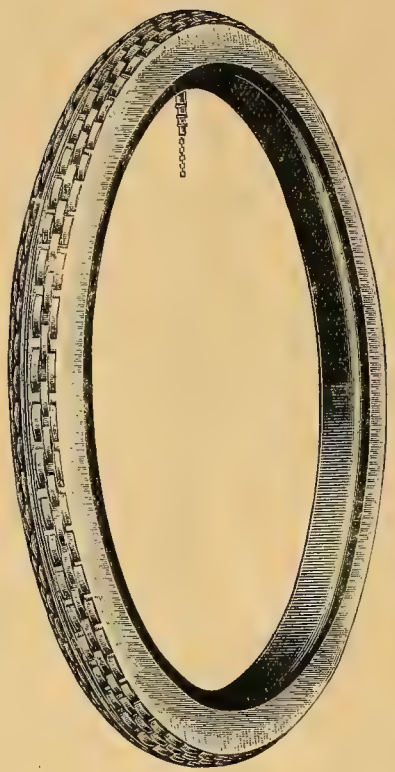
There's quite a lot of difference between the PETER UNION tyre and the kind that always lets you down when you are in the middle of nowhere on a wet night.



The PETER UNION tyre is prominent wherever conditions call for exceptional tyre durability. Evidence of this is seen in any touring test or race meet. Follow the example set by the men "in the know."

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LONDON to EDINBURGH.
13 "VINDECS" successful out of 15 starters.

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5 "VINDECS" started and 5 finished.

JUNE 13th, 1908. Scottish Motor Cycling Clubs' Competition for the Hamilton Shield.
"VINDEC SPECIAL" makes fastest time in hill-climbing test on Flotterstone.

JUNE 13th, 1908. Leeds and Bradford Motor Cycling Clubs' Leeds to Edinburgh and back Reliability Competition.
"VINDEC SPECIAL" wins the Bradford Cup and two Gold Medals.

It is the consistent running under all conditions of the "VINDEC SPECIALS" which has won for them their reputation.
Let us send you our fully illustrated and descriptive booklet of the "Vindec Special"—sent free upon request.

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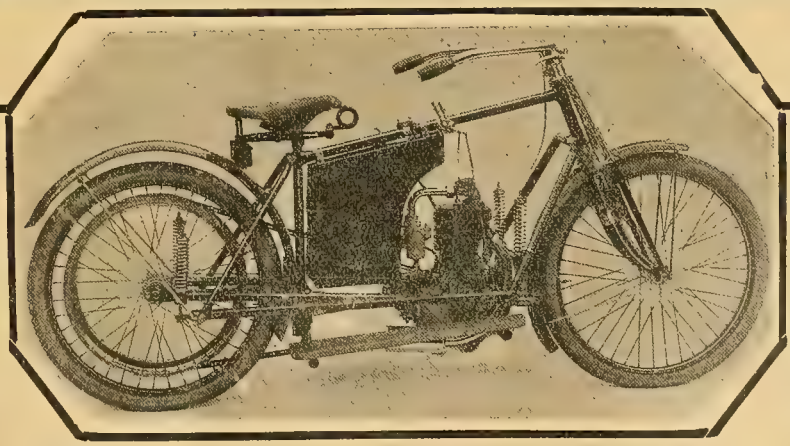
39gns. nett.

With 3½ h.p. Fafnir Engine, Longuemare Carburetter, Watawata Belt, Brooks Saddle, finest fittings throughout.



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With Gradua Infinite Change Speed Gear, which is causing such a great sensation.

Why not exchange ?

your old "shake your life out," nerve-racking, rigid framed motor cycle for the new Spring Frame, Vibrationless

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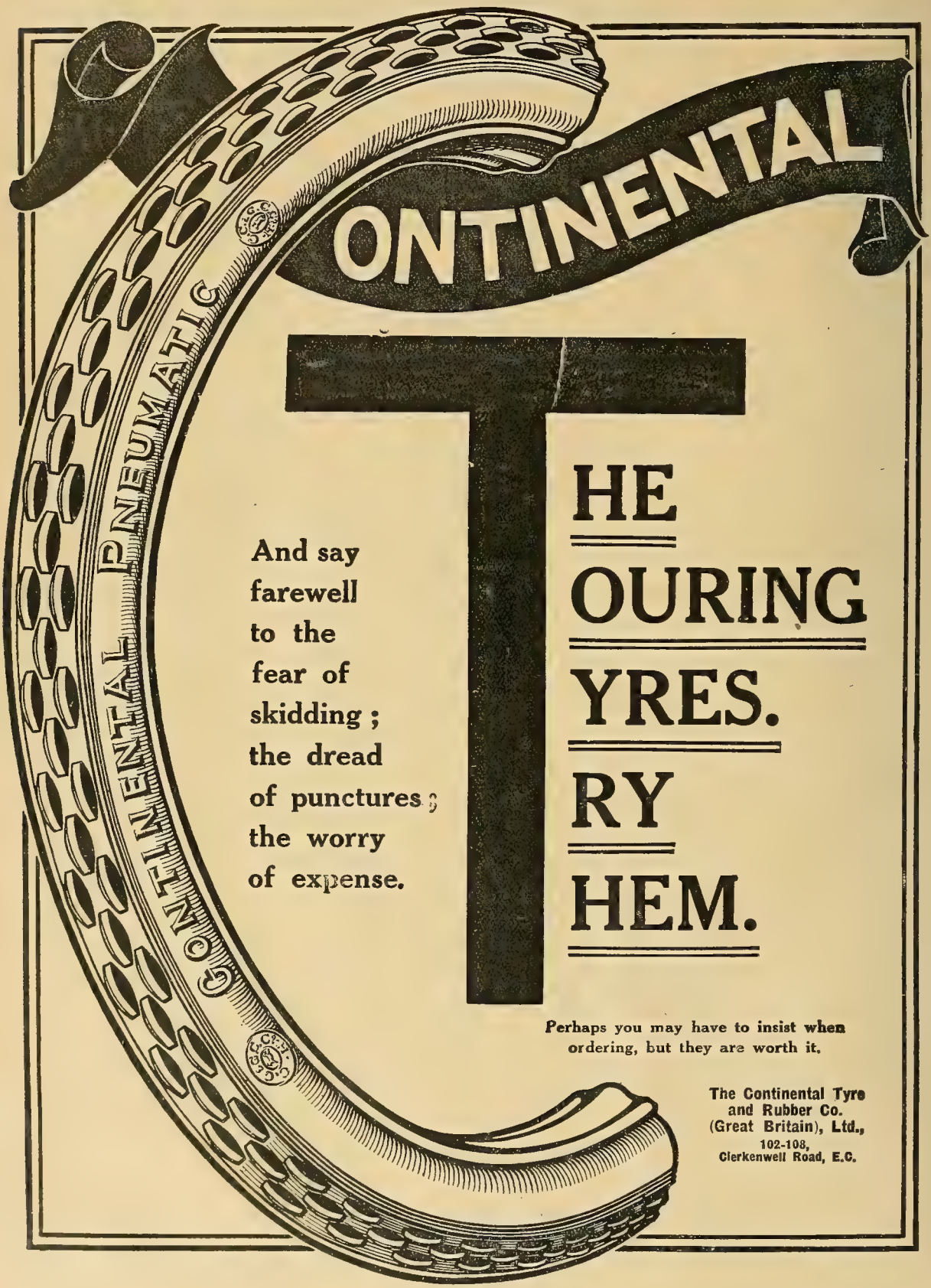
ZENITH MOTORS, Ltd., 101, Stroud Green Rd., London, N. SHOWROOMS, 119, Stroud Green Rd. (Hours 10 a.m.—5 p.m. Station, Finsbury Park.)
A "Zenette" (Standard pattern) is on view at the Showrooms of THE SERVICE CO., LTD., 292, High Holborn, W.C., also at Messrs. Alexander's Stand, Scottish Exhibition, Edinburgh.
P.S. "Zenette" spring frame Tricar-de-luxe, built on the same principle, 6-7 h.p. J.A.P. twin-cylinder engine, water-cooled, open frame, wheel steering, two-speed gear, finest coach-built body, bucket seat, a very handsome machine, **90 guineas nett.**
Orders should be placed immediately to prevent disappointment. (We can only execute in strict rotation.) A few exchanges entertained.



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THE TOURING TYRES. TRY THEM.

And say farewell to the fear of skidding; the dread of punctures; the worry of expense.

Perhaps you may have to insist when ordering, but they are worth it.

The Continental Tyre and Rubber Co. (Great Britain), Ltd., 102-108, Clerkenwell Road, E.C.

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5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. —16, Westgate, Halifax.

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3½ h.p. N.S.U., magneto, lamp, horn, tools, etc.; 16 guineas.—L2,641, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

3½ h.p. Genuine Chater-Lea, fine condition; £12; may be seen and tried. — C. A. Green, 73, Bengeo Street, Hertford.

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BROWN, 3½ h.p., magneto, as new, selling through illness. — Particulars from Greenwood, Petworth Park, Petworth.

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QUADRANT, 3½ h.p., 1906, reliable, ready for the road, tyres nearly new; £20, no offers.—Penfold, Kingscote, Beaconsfield.

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3½ h.p. Rex; £12 15s.; green and gold lined, Longuemare carburetter. — Apply, after 6.30, 186, New Kent Road, London, S.E.

VINDEC Special, 2¾ h.p., perfect condition, very little used, all accessories; £15.—Burtle, 52, Blackstock Road, Finsbury Park.

N.S.U., perfect order, nearly new, new belt, also spare belt and accumulators; bargain, £13. — Alexander 145, Oxford Street, W.

QUADRANT, 3½ h.p., magneto, handle-bar control; £32, all accessories; particulars; photo.—52, Ditton Court Road, Westcliff.

3½ h.p. Late 1907 Minerva, spring forks, condition as new; bargain, £22; also G.B. sidecar.—404, High Street N., Manor Park.

1908 Triumph, standard, for delivery first week July; must be sold.—Send best offers to No. 97, *The Motor Cycle* Offices, Coventry.

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or £4 and '07 single Rex, £6 and '06 Rex Liberal allowances for other makes.

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5½	h.p. REX DE LUXE, Roc clutch, magneto, twin tyres	27 10
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5½	h.p. TWIN VINDEC, magneto	29 10
4½	h.p. TWIN MINERVA, 2½in. tyres	23 10
3½	h.p. TWIN WERNER, spring forks, light	13 13
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SINGLE-CYLINDER MACHINES.

3½	h.p. REX DE LUXE (1908), Roc clutch, two speeds, magneto; cost £52	£32 10
4	h.p. ROC (1907), magneto, free engine	27 10
3½	h.p. TRIUMPH (1907), magneto	32 10
3½	h.p. N.S.U., magneto, low built	19 19
2¾	h.p. REX LIGHTWEIGHT (1908), nearly new	23 10
	FOUR-CYLINDER F.N., magneto	19 19
4	h.p. ANTOINE, M.O.V., 26in. wheels	14 14
3½	h.p. REX, 26in. wheels, 20in. frame	11 11
3½	h.p. REX (1907), spring forks, 2¼in. tyres	16 16
3½	h.p. REX (1906), spring forks	15 15
3½	h.p. ARIEL, M.O.V., 26in. wheels	12 12
3	h.p. ARIEL, M.O.V., 26in. wheels	10 10
3	h.p. CLYDE, M.O.V., magneto, vertical	11 11
3	h.p. WHITELEY, spray, good tyres	8 10
3½	h.p. EXCELSIOR, very powerful	8 10
3	h.p. SIMMS, M.O.V., magneto	10 10
3	h.p. FAFNIR, Phœnix two speed	13 13

LIGHTWEIGHTS.

3	h.p. BRADBURY	£10	2¾	h.p. MAGNETO	£10
3	h.p. HUMBER	10	3¼	h.p. REX	10
3	h.p. CALVERT	9	2½	h.p. CENTAUR	8
2¼	h.p. MINERVA	9	2	h.p. MINERVA	8
2½	h.p. REX	6	1¾	h.p. MINERVA	8
1¾	h.p. QUADRANT	6	2½	h.p. JAP	7
2½	h.p. BUCHET	8	2½	h.p. ARIEL	6

Push Cycles taken in part payment.

TRICARS

4	h.p. HUMBER, W.C., Phelon and Moore two-speed gear, coach built	£18 10
4	h.p. TRENT, W.C., open frame, two speeds, wheel steering	18 10
4	h.p. DERRICK, coach built, free engine	16 16
4	h.p. REX, free engine, special engine	17 17
3½	h.p. ROYAL SOVEREIGN, light	9 10
5	h.p. QUADRANT, two speeds	22 10
3½	h.p. WHITE & POPPE, M.O.V., Kent three-speed gear	16 16
5½	h.p. REXETTE, open frame, two speeds	35 0

MOTOR TRICYCLES.

2¾ h.p. HUMBER .. £6 | 3½ h.p AUTO MOTO £5
PHŒNIX TRIMO.. 6 | SIDECAR 3
Cash, Credit, or Exchange.

HIGH-CLASS LUBRICATING OIL.

Specially refined for air-cooled engines by the largest makers in the land. Heavy gravity, high flash point, great viscosity. Will increase your engine power 10 %.

HALF-GALLON CANS, **1/11.** Approval.

CORONET VARIABLE SPEED PULLEY.

14/- each.

Special Terms to the Trade.

Standard makes can be had without sending old pulley for pattern.

The screwed flange is securely held in any position by a simple yet ingenious contrivance that distinguishes it as the most improved pulley made.

GRIPSKIN BELTING.

Scientifically made from selected parts of hides. An efficient belt at a popular price. Outlasts two rubber belts. Correct angle, perfect drive, non-stretching. We send on approval on receipt of P.O.

⅝in., 9d.; ¾in., 10½d.; ⅞in., 1/-; 1in., 1/1.

Special Terms to the Trade.

Booth's Motor Exchange,

CORONET WORKS, WADE ST, HALIFAX.

Telephone 198Y.

MOTOR BICYCLES FOR SALE.

N.S.U. 5½ h.p. Twin Bike, like new, low frame, 2½ tyres, spares, tools, lamps, etc.; £30, bargain.—John Wiswall, Stanley Villas, Runcorn.

3½ h.p. N.S.U., low, Peter-Unions, Bates band back, Nilmelior, good climber, fine condition; £17.—44, Dornton Road, Balham, S.W.

3½ h.p. Clyde, magneto, Palmer tyres, splendid condition, just overhauled; a bargain, offers.—32, High Street, Coalville, Leicester.

KERRY, 2½ h.p., good condition, fast, hill-climber; £10, or near offer.—Apply, Box L2 640. *The Motor Cycle* Offices, 20, Tudor Street, E.C.

2¾ h.p. De Dion, brass torpedo tank, B. and B. carburetter, low machine; a bargain at £12.—Pummell, 55, Mosedale Street, Camberwell.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. —16, Westgate, Halifax.

CLARENDON, latest, reduced from £37 10s. to £25. — Stour Motor Cycle Depot, 27, Fleet Street, Coventry; 64, High Street, Stourbridge.

2 h.p. F.N., new Palmer cord, foot brake, perfect; £14; must sell; owner bought Rover car.—Holden, Park Street, Barnoldswick, Yorks.

6 h.p. Jap, Longuemare, Whittle belt, Jap clutch trembler, footboards, ideal for sidecar; £23.—White, 50, Beresford Road, Kingston, Surrey.

3¼ h.p. Rex, in perfect condition, new belt and tyre, with lamp, horn, numbers, and spares; £10 10s. cash, lowest.—Chilton, High Street, Watford.

£6.—Minerva, 2 h.p., M.O.V., spray, Stanley-Dermatine, good running order. — "Motor," 19, Courtenay Street, Kennington Lane, S.E. After 8.

GENUINE Zedel 2¾ h.p. Cycle, good condition, Barlow carburetter, Palmers, for exchange low lightweight.—Geeves, 19, Neckinger, Bermondsey.

4 h.p. Werner, twin-cylinder, spring forks, ratchet exhaust lift, in fine running order; 12 guineas; no offers. — 82, Queen's Road, Peckham, S.E.

1908 Motosacoche, in splendid order, fitted with spring forks, carrier, stand; price £25, or near offer.—J. Tyler, 85, Morant Road, Colchester.

TRIUMPH-MINERVA, 2½ h.p., M.O.V., splendid hill-climber, new back tyre, reliable mount; £8.—W.S., 10, Bellefields Road, Brixton, London, S.W.

h.p. Buchet, excellent condition, accessories, £12; clutch (chain drive), 15s.; offers considered.—"Waverley," 72, Park Road West, Birkenhead.

5 h.p. Twin Rex, just overhauled, better than new, fitted new Guenet coil, powerful hill-climber, easy starter; £20.—Bamber, Totley Rise, Sheffield.

£8 10s., or offer, for 2¾ h.p. Mitchell motor cycle, good sound condition, or exchange anything useful. — H. Upton, 31, Islingwood Street, Brighton.

2 h.p. Minerva, M.O.V., Dunlop tyres, Bates non-skids, stand, in perfect order; only requires seeing; £10.—Barber, 17, Galena Road, Hammersmith, W.

2 h.p. Minerva, can be seen going any time; a bargain, £11 11s., a push cycle taken in part payment.—Hartnup, High Street, Chislehurst, Kent.

MINERVA, 2¾ h.p., spring forks, Eisemann magneto, perfect order, £15; Excelsior, 2¾ h.p., good running order, £8.—Adlington, Rainbow Hill, Worcester.

TWIN Rex and Liberty Sidecar, good condition throughout; seen and tried here; £24, or would separate.—A.L., Pacific Lodge, Duncan Road, Gillingham.

MINERVA, 2½ h.p., splendid hill-climber, good running order; bargain for quick sale, £9; no offers. — Cherry, "Clovelly," Etchingham Park Road, Church End, Finchley.

REX, 3½ h.p., 1908 finish, magneto, spring forks, not ridden 500 miles, with accessories £25, without £20, or nearest offer. — Brazier, 4, Charlwood Street, Pimlico, London.

In answering any of these advertisements it is desirable that you mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

EXCELSIOR, 3½ h.p., footboards, Watawata, horn, lamp, etc., tools, spares; £14; photo; trial any evening.—132, *The Motor Cycle* Offices, Coventry.

G.B., 3 h.p., magneto, Xl'all spring forks, stand, adjustable pulley, Whittle's belt, good condition; £20.—Knowles, Parliament Street, Ramsey, I.O.M.

3¼ h.p. Rex, Longuemare, trembler, new Palmer cords, handle control, low frame, perfect running order; £17 10s.—94, St. George's Road, Forest Gate.

FOR Sale, 4½ h.p. genuine De Dion engine, water-cooled, good as new; also Dupont two-speed; £6, or nearest offer.—Ellis, Rookery Road, Handsworth.

h.p. Kerry, low built, spray, girder forks, spring saddle, new Clinchers, good running order; £9 10s., or nearest offer. —34, Arthur Street, Gravesend.

3½ h.p. Minerva, late 1907, not ridden 600 miles; cost nearly £40 with accessories, sacrifice £16 10s.; no offers.—C. Moody, 141, Salmon Lane, Limehouse, E.

3½ h.p. Triumph, late 1907, new April this year, in excellent condition, adjustable pulley; price £32, no offers.—No. 142, *The Motor Cycle* Offices, Coventry.

h.p. Quadrant, in good running order, Brooks B100 saddle, girder forks, Longuemare carburetter, Continental belt; £13. —Hitchings and Son, Evesham.

2¾ h.p. F.N., with sidecar, perfect condition, including tyres, for quick sale, privately; £15.—Apply, in first instance, to Graham Bros., Garage, Enfield, N.

3½ h.p. Centaur, fast, powerful, suit sidecar, lamp, stand, spares, etc., thorough good machine, new tyre back; £9, or offer.—8, Sebert Road, Forest Gate.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. —16, Westgate, Halifax.

WOLF New Featherweight Motor Cycle, complete, new, unsoiled; accept £17; must realise at once.—Letters only, Williams, c/o Sydney Road, Raynes Park.

h.p. Peugeot, Chater, very low, Longuemare (H.), brass tank, two accumulators (P. and R.), P.U. tyres, all as new; £23.— Smith, 8, Sebert Road, Forest Gate.

TRIUMPHS, Triumphs, 1907, for £41, 1908 £48; your machine part payment.— Stour Motor Cycle Depot, 27, Fleet Street Coventry; 64, High Street, Stourbridge.

TRIUMPH, 3½ h.p., magneto, new August, 1907, all spares and accessories; seen evenings; guaranteed perfect condition; £30.—31, Rhodesia Road, Stockwell, S.W.

F.N., 4½ h.p., four-cylinder, latest model, magnificent hill-climber, appearance and condition equal to new; £33.—Warlet, 106, Great Portland Street, London, W.

3½ h.p. White and Poppe, Peter-Union tyres, chain drive, clutch, F.N. carburetter, band brake, climb anything; £13. —Barber, 17, Galena Road, Hammersmith.

2¼ h.p. Ariel Lightweight, splendid condition; £14, or would exchange higher power, cash adjustment, twin preferred. — Edgar Wroe, Melbourne House, Wombwell.

6 h.p. Twin Rex, new Brooks non-skid and new Continental tube on back tyre, new Lycett belt, in splendid condition; what offers?—133, *The Motor Cycle* Offices, Coventry.

3½ h.p. Fafnir, almost good as new, beautiful low machine; twenty guineas; ride fifteen miles to intending purchaser.— Stapleton, Post Office, Finchampstead, Berks.

TRIUMPH, 3 h.p., magneto, registered March, 1907, exceptional condition, little used, Watawata, lamp, horn; 25 guineas.—"Thornbury," Grosvenor Road, Aldershot.

EXCELSIOR, 3½ h.p., no trouble machine, perfect condition, only run 1,500 miles, Clinchers, 26 by 2¼, Watawata, Longuemare; £14; seen any time.—30, Dault Road, Wandsworth.

2½ h.p. Buchet, perfect condition, fast, powerful, comfortable, tyres good, new belt, footbrake, trembler coil, all accessories, sacrifice £11; also 2¾ h.p. Curry, Stevens engine, two accumulators, new belt, in good condition, £10, or nearest offer; call or write.—Shenton, 34, Thames Street, Leicester.

FARRAR'S

Is twenty yards from Halifax Station.
Next door to Square Church.

MAGNETO IGNITION MACHINES.

3 h.p.	SINGER, belt drive, Simms-Bosch magneto	£18 0
1908	F.N. Lightweight	32 0
1908	REX Lightweight	23 0
3½ h.p.	Four-cylinder F.N.	23 0
5½ h.p.	REX-DE-LUXE, almost new	31 0
5½ h.p.	REX-DE-LUXE, good	29 0
4½ h.p.	Twin G.B., Nala, two-speeds	32 0
4 h.p.	ANTOINE, 1907	19 0
2½ h.p.	SINGER, vertical	10 0

DUST LIFTERS.

5 h.p.	Twin Peugeot, a flyer	£22 0
4½ h.p.	Four-cylinder DURKOPP	23 10
3½ h.p.	ARIEL, M.O.V., 26" wheels	14 0
5½ h.p.	REX-DE-LUXE, twin tyres, clutch	23 0
5 h.p.	Twin KERRY, very low	19 0
5½ h.p.	Twin REX, a dream	19 0
3½ h.p.	1906 REX, spring forks	15 0
3 h.p.	TRIUMPH	19 0
3 h.p.	BROWN, vertical, low	12 0

FASHIONABLE LIGHTWEIGHTS.

1¾ h.p.	MINERVA, spray	£6 0
2 h.p.	WERNER, low, vertical	8 10
1¾ h.p.	MINERVA, good	5 10
2 h.p.	MINERVA, M.O.V., 26" wheels	9 9
2 h.p.	CYCLONE, vertical, spray	7 0

Push bike part payment.

VALUE FOR MONEY.

3 h.p.	MINERVA, vertical, M.O.V.	£12 10
3½ h.p.	DUX, vertical, M.O.V.	10 0
2½ h.p.	HUMBER, torpedo tank	9 0
3 h.p.	EXCELSIOR, a flier	10 0
3½ h.p.	REX, 1905 machine, M.O.V.	13 0
3½ h.p.	REX, 22in. frame	11 0
3 h.p.	REX, vertical, trembler	10 0
3 h.p.	NOBLE, vertical, spray	10 0
2 h.p.	QUADRANT, spray	8 8
2¾ h.p.	PEBOCK, 26in. wheels	11 0
2¾ h.p.	R. and P., 26in. wheels, vertical	10 0
2½ h.p.	CLARENDON, 26in. wheels	10 0
3 h.p.	KERRY, almost like new	13 0

Rubber and Canvas V Belting. Embodies all good points of other rubber belts without their drawbacks. "A distinct improvement."

NOTE.—The prices are between 33% and 50% less than other makes. Good rubber belts need not be dear. Send cash for sample length on approval. ¾" 9d., ⅞" 1/-, 1" 1/4, 1¼" 1/8 per foot. Any length cut. Fasteners 6d. each.

TRICARS.

5 h.p.	REXETTE, two speeds	£29 0
4½ h.p.	REXETTE, water cooled	25 0
5 h.p.	REXETTE, sprung back and front, wanted.	Offers

SIDECARS.

MONTGOMERY, right-hand side, flexible, 26in. Clincher tyre	£4 10
Brand New Sidecar, rigid, right-hand side, 26×2¼in., Clincher tyre	5 0
Brand New Sidecar, rigid, right-hand side, 28×2¼in., Clincher tyre	5 0

ODD BARGAINS.

Eisemann Magneto, suit any twin V engine, £2 15s.
Osborne Four-speed Gear, 1908 pattern, £3 3s.
New Twin Coil, 10/- New Lycett's B Toolbag, 6/-
New Lycett's L72 Saddle, 6/9. Double Twist Horn, 4/8; large size, 6/-. Motor Cycle Back Brake, new, 6/-. New Rex Free-wheel, 4/-.
Osborne Free Engine Clutch, 27/6.
CLINCHER TYRES.—See my advert. on page 28.

NEW TYRES FOR OLD.

Genuine Continentals.	Cover.	Tube.	Genuine Continentals.	Cover.	Tube.
26 × 2	24/-	9/6	28 × 2	25/-	10/-
26 × 2¼	25/6	10/-	28 × 2¼	27/3	10/6
26 × 2½	29/6	11/-	28 × 2½	29/9	11/3

3/- allowed for old covers, 2/- for old tubes.
Traders and Agents send for discounts.

LYCETT'S "LIGHTNING" STANDS.

FIRM. RIGID. STRONG.
For 24", 26", or 28" wheels. 4/9 per pair.
Send for Price List of Accessories. Pounds saved.
WANTED.—Triumphs, Vindecs, N.S.U., or any good 1907 or 1908 machines. Cash waiting.

E. FARRAR,
ALBION WORKS, SQUARE ROAD, HALIFAX.
Next door to Square Church.

MOTOR BICYCLES FOR SALE.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. —16, Westgate, Halifax.

3¼ h.p. De Dion, Chater 5a frame, 26in. wheels, Continental and Clincher, two tanks, long handle-bars, machine nearly new; £17, or offer.—Lewis, Colville Road, Leyton.

3½ h.p. Centaur, chain drive, free engine clutch, new condition; £22; too powerful for owner; exchange lightweight. — Johnson, 54, Comerford Road, Brockley, London.

£25 Buys 6 h.p. Roc, condition like new, perfect running order, free engine, very comfortable (worth double), every accessory.—B. B. Ames, Brambledene, Eaton, Norwich.

FOR Sale, 2¾ h.p. Minerva, Chater-Lea fittings, Dunlop tyres, spray carburetter, engine just been re-bored, splendid order; £10 10s.—Wood, Woodbines, Canbury Avenue, Kingston.

2¾ h.p. Minerva, splendid condition, guaranteed perfect order, plenty spares, including belt, good hill-climber; £13 10s., offer; after 2.—Myrtle Villa, Oliver Road, Leyton, E.

3¼ h.p. Rex, excellent condition, practically new Clincher, Dunlop, new inners, large lamp, horn, stand, ready for road; 12 guineas.—Yule, 12, Richmond Terrace, Cambridge.

TRIUMPH, 3½ h.p., magneto, almost new, unpunctured, and absolutely perfect, two belts, new spare valve, complete, and all accessories; sacrifice £32.—23, Organ Street, Leigh, Lancs.

2¾ h.p. Minerva, James, Brown and Barlow, long handles, fast, just overhauled, accessories, spares; £12, or nearest offer.—Whittaker, 13, Homer Street, Balsall Heath, Birmingham.

3½ h.p. Minerva, late 1906, splendid running order and good condition, with sidecar, also spares and accessories; sacrifice £16; seen by appointment.—Dimelow, 64, Turner's Road, Bow, E.

3½ h.p. Coventry Eagle, Minerva engine, perfect condition, very little used, Clincher tyres, new 25 amp. battery; giving up motoring; genuine bargain, £18 10s. — Thomas, Trevose, Wrexham.

BARGAIN. — 6 h.p. Twin Antoine, Druid spring forks, French grey finish, not run 200 miles; owner exchanged for Motosacoche; thrown away at £30.—Dufaux (Eng.), Ltd., 65, Holborn Viaduct, E.C.

3½ h.p. Zenith Bicar, good as new; owner gone abroad; £26 10s., would exchange for Moto-Reve or Motosacoche; 3½ h.p. Trafalgar, 26 mm., Longuemare carburetter.— Wilkins, Stilton, Peterborough.

3 h.p. White and Poppe, Chater-Lea, very long wheelbase, very low frame, genuine machine, reliable; thundering bargain, £14, or very near offer.—A.T.S., 86, Colvestone Crescent, Dalston, London.

TRIUMPH, purchased April, 1908, ridden 250, unmarked, perfect, doctor forbids using, Palmer cord tyre, lamp, horn, spare valve, etc., all as new; cost £53, take £42.— 124, Bridge Street, Warrington.

QUADRANT, 1905, spring forks, saddle, Longuemare spray carburetter, new back tyre, two accumulators, first-class condition, lamp and tools; £12, or near offer.— Wyatt, 80, Willesden Lane, Kilburn.

MINERVA, 1907, accumulator ignition Mabon free engine clutch, Michelin steel studded back, Continental front, in good condition; £25.—Pearson, Naval Motor Club, Wickham Street, Portsmouth.

3¾-4 h.p. (85 mm. by 90 mm.), Durkopp, magneto; 15 guineas; ball bearing engine, spring forks, in perfect order and condition, accessories, spares, including tyre.—19, Cheriton Square, Balham.

3 h.p. Quadrant, magneto, spring forks, new Palmer tyres (unpunctured), plating as new, new rims, guaranteed perfect; open to expert examination; £23.—H. Germon, Charlton Cottage, Tiverton, Devon.

FOR Sale, genuine Clement lightweight, 2 h.p., Garrard two-speed, Fairfax silencer, with cut-out, spring front forks, splendid condition; bargain, 10 guineas.— Alcock, Hazelmere, Greenbank, Northwich.

MOTOR BICYCLES FOR SALE.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. —16, Westgate, Halifax.

5 h.p. Twin Magneto Rex de Luxe, twin tyres, spring forks and seat-pillar, not ridden 1,000 miles, in thorough order; £22, bargain.—The Salisbury Garage, Salisbury.

2 h.p. De Dion on New Hudson, new Palmer cord tyre, new Watawata belt, new accumulator, spares, very reliable, and good value; £14.—150, *The Motor Cycle* Offices, Coventry.

4½ h.p. Twin-cylinder Minerva, very low frame, 26 by 2½, new tyres, new belt, in perfect condition throughout; £19 19s.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

2¾ h.p. Auto Chater-Lea, new tyres, polished brass tank, Bowden exhaust lifter, spring saddle, and stand, splendid condition; £12.—Smith, plumber, Wivenhoe, Essex.

2¾ h.p. F.N., very reliable machine, no signs of wear, vertical engine, Chater-Lea frame, Brooks B100 saddle, Palmer tyres; £15.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

LIGHTWEIGHT, 2¼ h.p. Buchet engine, footboards, torpedo tank, good condition, tyres good, many spares, including cylinder, piston, gears, etc.; £10.—A. McGowran, Union Street, Coventry.

F.N., 1908, 4½ h.p., practically new, Palmer cords, spares, Bowden control, perfect order, just won M.M.C. Hill-climb; selling to buy 6 h.p. model; £35.—Codrington, Bonaventure, Portsmouth.

BRADBURY, 1908, 3½ h.p., spring forks, A Won tyres, complete with Bradbury trailer, never been on the road; cost £47, will take £40.—Box 12,659, *The Motor Cycle* Offices, 20, Tudor Street, E.C.

3½ h.p. Eclipse Motor Cycle, Chater-Lea throughout, Clincher tyres, excellent running order, practically new, not driven 200 miles; £17 cash; letter only.—Mattos, 44, Maitland Park Road, Haverstock Hill, N.W.

3½ h.p. Humber Centaur, chain drive, trembler, wipe, spray, long short handlebars, seat-pillars, perfect order, except tyres; £10; approval; wanted, 3½ h.p. Minerva valves, pulley, etc.—Minerva, 172, High Street, Ayr.

NOW or Never.—£3 down secures either 3 h.p. Noble, 3 h.p. Rex, 3½ h.p. Rex, 2¾ h.p. Humber, 2½ h.p. Singer, 3 h.p. Excelsior, 3½ h.p. Dux (M.O.V.), 2¾ h.p. Clarendon; balance 5s. per week.—Farrar, Square Road, Halifax.

ORMONDE (£10), 2 h.p. Vaf engine, Longuemare carburetters, Bassee and Michel coil and new accumulator, A Won Clinchers, handle-bar control, splendid condition.—Chapple, 21, Cuba Street, Milwall, London.

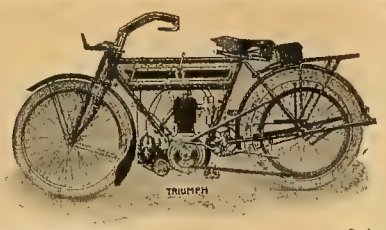
MOTOSACOCHE, practically new, not ridden 400 miles, spring handle-bars, extra thick tyres, Brooks B100 saddle, luggage carrier, special stand, spares; £25; owner bought tricar.—S., c/o Daniels, newsagent, Epsom.

TWIN, 5 h.p., special large carburetter, R.O.M., Chater-Lea, Xl'all spring forks, Advance adjustable pulley, all accessories, spares, ridden under 1,000 miles; bought tricar.—Write, Lyndhurst, Shooter's Hill Road, Blackheath.

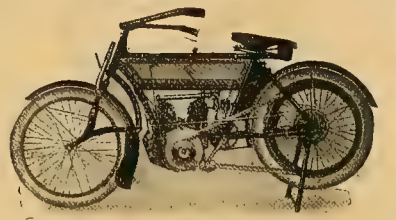
3½ h.p. Minerva, spring forks and seat-pillar, M.O.V., 26 by 2¼ tyres, recently overhauled, splendid hill-climber, guaranteed in excellent condition; accept £14 14s. lowest.—H. E. Reynolds, c/o Motor Works, Williton, Somerset.

1907 5 h.p. Twin Magneto Rex, cantilever seat, Albion adjustable pulley, every necessary spare, ridden only 500 miles, fine condition, practically new; at £27 10s. is a genuine bargain.—N. Dodd, Woldingham. Garaged Wauchope's.

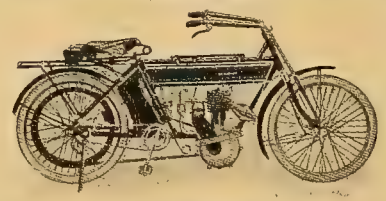
FOR Sale, at knock-out prices, a 6 h.p. Jap motor cycle, Bat spring frame, just been overhauled, nearly new, only £25; De Dion 2¾ h.p. motor cycle, £10; Kerry Model de Luxe 2¾ h.p. motor cycle, £13; Minerva 2 h.p. motor cycle, £5; and a water-cooled Witley engine 4 h.p. tricar, all there, at £14; if you are a bargain hunter give me a call.—Bartlett Bros., motor engineers, 125, Sheen Road, Richmond, Surrey.



1907 TRIUMPHS £41 0
1908 TRIUMPHS 48 0
YOU CAN GET THEM AT WAUCHOPE'S.
EXCHANGES ARRANGED.



1908 VINDEC SPECIALS.
YOU CAN GET THEM AT WAUCHOPE'S.
Second-hand machines of any leading make taken in part exchange.



1908 QUADRANTS.
Delivery from Stock. A liberal allowance for second-hand machines. There are two models, £45, A.V., and £47 10s., M.O.V. to select from.

MINERVAS.
2¾ h.p., £29; 3½ h.p., £32; 4½ h.p., £39; 7-8 h.p., £45.
YOU CAN GET THEM AT WAUCHOPE'S.
Send particulars of your second-hand machine, and we will submit price of allowance unseen, subject to machine tallying at sight.

MOTO REVES.
YOU CAN GET THEM AT WAUCHOPE'S.

200 MOTOR CYCLES TO SELECT FROM
WAUCHOPE'S
THE WORLD'S LARGEST DEALER
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MOTOR BICYCLES FOR SALE.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. —16, Westgate, Halifax.

FOR Sale, N.S.U., 6 h.p., two-speed gear, magneto ignition, complete with long horn, stand, and numbers, new August, 1907, not run 1,000 miles, perfect order; any trial or examination; £32 10s.—Batchelor, Clarence Street, Kingston.

5 h.p. Vindec Special, light, Tourist Trophy pattern, in splendid condition, fitted with J.A.P. patent carburetter, all accessories, spare cover, tube, belt, and two pulleys; £36.—Cunliffe, Springfield, Spath Road, Didsbury, Manchester.

VINDEC Special, 5 h.p., twin, Tourist Trophy model, with Truffault forks, grand order; trial on any hill; starts walking pace; Shamrock studded tyre rear, all spares; bargain at £32 10s.—Sproston, 18, St. John's, Tunbridge Wells.

RUSHOLME.—Extremely low-built Jap, 2½ h.p. vertical engine, late 1907, Goodrich and Dunlop tyres, B. and B. throttle, automatic lubrication, enamelling unscratched; £16 10s. — 28a, Wilmslow Road, Rusholme, Manchester.

3¾ h.p. N.S.U. (August, 1907), magneto, two-speed gear, free engine, 2½in. tyres, spring forks, hardly used, like new, horn, lamp, spares; cash £30; expert examination invited. — Write, 67, Holmewood Gardens, Streatham Hill.

ROC Royal, 1908, standard 4 h.p., two-speed gear, magneto, Dunlops, handle-bar control, only ridden 500 miles, condition as new, carrier, lamp, horn, numbers, various spares and tools; £37 10s.—Crow, Nottingham Road, Croydon.

DIRT Cheap.—3 h.p. Fafnir, No. 6 frame, Clinchers, long bars, new Dermatine belt, new 20 amp. accumulator, very low, smart machine, 30s. umbrella coat, spares; £15 lot.—Avondale, Moreton Road, Worcester Park, Surrey.

MINERVA, 3½ h.p., good condition, spring forks, long handle-bars, new Continentals, accumulators, belt, lamp, and horn, tools, spares, nothing to buy; recently overhauled; nearest offer to £20.—Hulme, 350, Blackburn Road, Accrington.

3½ h.p. Motor Cycle, Whitley inclined engine, long, low machine, long handle-bars, Palmer tyres, little worse than new; £13 10s., or nearest offer; also sidecar, rigid, like new, £3 10s.—Rutter, 38, George Street, Consett, Co. Durham.

3½ h.p. Humber, first-class machine, in beautiful condition, free engine, just fitted new long handle-bars, saddle, accumulator, and tyres, a very reliable machine, and perfect in every detail; £15.—F., 21, Fieldhouse Road, Balham, S.W.

FOR Sale, Ariel Motor Cycle, 3½ h.p., just been thoroughly overhauled and enamelled, £15; Liberty sidecar, good order, £4; one extra strong motor trailer, cane chair, upholstered in green, equal new, £5.—Hildred, Coningsby, near Lincoln.

5½ h.p. Twin N.S.U., magneto, bought new this Easter, ridden 600 miles, unpunctured, perfect machine, guaranteed, complete with powerful lamp and separate generator, horn, etc.; best offer over £30 secures. —D. Noble, 55, George Street, Altrincham.

EXCELSIOR, 3 h.p., two Bowden brakes, Clincher tyres, stand, trembler coil, wipe contact, separate generator head lamp, Pigmy accumulator, and spares, new condition, climb any hill; bargain, £14 10s.; any trial.—Motor, 76, Albert Road, Peckham.

3½ h.p. Ariel, long bars, low, B105, Advance pulley, spring girder forks, thumb-slides, cut-out, two accumulators, side boxes on carrier, Dunlops (once punctured), many spares, powerful, and absolutely reliable; £23, no offers.—26, Margaretta Terrace, Chelsea.

QUADRANT-MINERVA Motor Cycle, 1¾ h.p., cylinder renew, or repair only, otherwise complete, low, 26in. by 2in. Palmers, plain coil, Longuemare, band and rim brakes, stand, etc.; £3, or offer.—P. Ormesher, 60, Fazakerley Road, Walton, Liverpool.

TRIUMPH, 1906, 3 h.p., perfect condition, two accumulators, Brown and Barlow carburetter, handle-bar control, variable speed pulley, horn, Brooks Stratex belt, tyres good enamelling and plating perfect; £27 10s.—Whitemore, Noel Street, Nottingham.

MOTOR BICYCLES FOR SALE.

5 h.p. Twin Rex, spring seat and handlebars, new condition; £20, bargain.

5 h.p. Twin Hamilton, fast, racy machine, suit passenger work; £16 10s.

3½ h.p. Werner Twin, very light and fast machine; £16.

2 h.p. Rex Light Motor Cycle, smart machine; £8.

2¼ h.p. Humber Lightweight, climb almost any hill, splendid condition; £8 10s.

3 h.p. Trent, in excellent condition; £11, cash, bargain.

2¾ h.p. Bradbury, fast, powerful machine; £10 15s.—128, High Road, Tottenham.

SHEFFIELD. — Do not delay; first cheque receives each bargain.

3 h.p. Humber, free engine clutch, splendid condition; £9 10s.

2¾ h.p. Humber, nearly new Palmers, suit tall rider; a bargain, £8 10s.

3 h.p. Automotor, very long and low, torpedo, footboards, a regular mover; £12.

3 h.p. Rex 50-guinea model, giving it away at £9 10s.

6 h.p. Rex Triette, magneto, like new; lowest £35.

LET Us Have Your under-powered machine, we will fix you up with a good machine; no fancy prices with us.—Note the address, Millhouses, Motor Exchange, Sheffield.

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ROC 4 h.p., Military model, second-hand, good order, £30; Roc 5-6 h.p. Twin, £45; subject to being still unsold.—A. W. Wall, Ltd., Roc Motor Cycle Works, Birmingham.

LEEDS.—2 h.p. Minerva, girder forks, good running order; £7.

LEEDS.—4 h.p. Military Roc, magneto, free engine, two speeds, first-class order; £32, or exchange.

LEEDS.—2¾ h.p. Gobron-Minerva, girder forks, good running order; £11 10s.

LEEDS.—5 h.p. Twin Rex, spring forks, 2¼ tyres, footboards; or exchange; £18.

LEEDS.—2¾ h.p. New Hudson, good order, Palmer tyres, 26in. wheels; £13.

THE Leeds Motor Exchange are open for all classes of repairs or replacements. Write or telephone (2,262), giving your requirements. Exhaust valves, cast-iron heads, 2s. 6d. Send old valve or drawing to the Leeds Motor Exchange, 28, Dock Street, Leeds.

3½ h.p. 1908 Brown, with £15 two-speed gear, Palmer Cord tyres, extra strong castor wheel sidecar; £43, or will exchange for tricar and cash.—Baker, builder, Hawley, Dartford, Kent.

N.S.U. 5½ h.p. Twin, magneto, two-speed free engine; not scratched, hardly ridden, ideal for sidecar, 24in. wheels; £30 lowest; no offers, cost £63. — Upton, 24, Osborn Road, Sparkbrook, Birmingham.

1908 2¾ h.p. Minerva, magneto, new May, handle-bar control, all accessories; £27, or exchange cycle and cash; also, 8-10 h.p. Rexette, two speeds, splendid order, tyres perfect, non-skids; £25, or exchange motor cycle lightweight.—61, Church Street, Leigh, Lancashire.

3½ h.p. N.S.U. motor cycle, 20in. frame, 24in. wheels, magneto ignition, Express stand, horn, two-speed gear, and free engine, studded cover; forecar for N.S.U.; stand to fit tricar, generator, headlights, Watawata belt, Brooks bucket seat; £40.—155, *The Motor Cycle* Offices, Coventry.

2¾ h.p. F.N., Longuemare, Chater-Lea, low, long, 26-2¼ Clinchers (A1), extra, back Dermatine belt and spare, Price's stand and spare tube, lamp, separate generator, horn, tools and spares, £15; also 3 h.p. Humber, £9.—A. Fort, 51, Whitfield Street, Tottenham Court Road.

VINDEC 1908 5 h.p. Twin Tourist Motor Cycle, never ridden, free engine, and second speed gear, magneto cover, carrier and stand combined, and Lucas acetylene lamp and spanners; cost £65, price £50.—Motorist, Mrs. Fell, Norman Avenue, Filey, Yorkshire.

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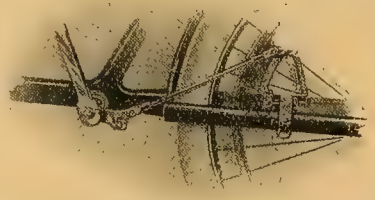

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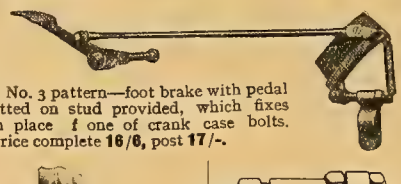

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HAMPSTEAD.—3½ h.p. Bat, low and powerful, good tyres; bargain; guaranteed; £10 only.

HAMPSTEAD.—3½ h.p. White and Poppe, Chater-Lea frame, very low, grand condition; £16.

HAMPSTEAD.—3½ h.p. Minerva, new November, 1907, magnificent condition; £23, with all spares.

HAMPSTEAD.—3½ h.p. Minerva, late 1906, spring forks, splendid condition, new tyres; £17.

HAMPSTEAD. — 1¾ h.p. F.N. lightweight, only run few miles, grand condition; £20, bargain.

HAMPSTEAD. — 3 h.p. Triumph, late 1906, spring forks, good tyres, new condition; £20.

HAMPSTEAD.—3½ h.p. late 1907 Triumph magneto, and spring forks, with all spares; £30.

HAMPSTEAD.—3½ h.p. 1908 brand new Triumph, magneto, and spring forks; £38, bargain.

HAMPSTEAD. — F.N., 1¾ h.p., 1908, brand new, lightweight, magneto, and spring forks; £30.

HAMPSTEAD. — 3 h.p. Triumph, genuine; £16; good tyres and condition; great bargain.

HAMPSTEAD.—Twin Griffon, late 1907, magneto, and spring forks, almost new; £29.

HAMPSTEAD.—3½ h.p. Griffon, with spring forks; £15, great bargain; guaranteed.

HAMPSTEAD. — Brand new 1¾ h.p. lightweight, Griffon, with spring forks; £28, bargain.

HAMPSTEAD.—3 h.p. Rover, vertical, M.O.V., splendid condition and going order; bargain, £12.

HAMPSTEAD for Bargains.—Sole agents for Griffons, Minervas, F.N.'s, Triumphs, etc.; liberal allowances on exchanges.—Rey, 5, Heath Street Motor Works. Tel. 2678, P.O., Hampstead.

5-6 h.p. Twin Rex, spring forks, long bars, low saddle; £18 18s.; liberal exchange. -16, Westgate, Halifax.

2 h.p. Simms Engine and Magneto, £3; 4 h.p. w.c. marine, £7; wanted, 6 h.p. a.c. —5, Gibbins Road, Selly Oak.

1908 4 h.p. Royal Roc, two speeds, clutch, spring forks, magneto, Brooks non-skid back, Dunlop front, ridden about 200 miles, absolutely as new, guaranteed, Lucas lamp, spare valve, complete; lowest cash, £32 10s.; seen any time.—186, South Lambeth Road, S.W.

1908 Triumph, almost new, perfect, can climb anything, and do 5 to 60 per hour; owner driving four-cylinder Darracq car only reason selling; has ridden Triumphs four seasons; first £40 has it, no offers; seen 158, Clapham Road, S.W.—Address, Leonard Mortimer.

3½ h.p. Phœnix Cob, open frame, pan seat, magneto ignition, two-speed gear, accessories, etc.; £35; as new.—Garaged at Wauchope's, where machine can be seen and tried; price £35; gears and parts are covered, and would suit lady or gent.—9, Shoe Lane, Fleet Street, London.

ARIEL 2¾ h.p. Lightweight, had very little wear, original tyres, as new, and unpunctured, no better looking machine anywhere, will guarantee the whole perfect and equal to new; can I sell it in Birmingham (you know the makers) for something over £10; wanted 1908 Triumph, new.—71, Oakfield Road, Birmingham.

MINERVA and Rex.—We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices; cash, exchange, or gradual payments; charged accumulators for hire, 1s. per week.—Cookson Bros., 511, Chester Road, Old Trafford.

LONDON.—2¼ h.p. Kerry, splendid condition, new Peter-Unions (26 by 2), new Dermatine belt, trembler coil, accumulator, horn, lamps, generator, Main-Hilton stand, all new, long bars, Bowden brake and valve lifter, numerous spares and tools; only wants seeing; absolute bargain, £15 for quick sale.—Jackson, 179, Euston Road.

TRICARS FOR SALE.

TOCKPORT.—5½ h.p. twin Rex tricar, very powerful, footboards, splendid running der, tyres excellent; £20.

TOCKPORT.—8 h.p. three-cylinder Jap dual car, Palmer cord front tyres, ose back, all perfect, automatic lubrica-n, roller worm drive, two speeds, sociable, mfortable, and reliable, splendid climber; iat offers? going cheap.

TOCKPORT.—Runabout, 5 h.p., 1907, bucket seat, only 20 inches from the ground, ry rakishly built, winner tricar class Man-ester Motor Club hill-climb, fast, and sily controlled, tyres perfect; 40 guineas. Lund and Davies, Heaton Lane.

UMBER Tricar, and motor cycle and sidecar, good order; offers, or exchange r small car.—Slight, photographer, Pock-ington.

UADRANT Carette, twin engines, wheel steering, two speeds; £40, or best offer. H. W. Smith, 1, Ford Street Saint Mary, ottingham.

WIN Kerry Tricar, 5 h.p., two speeds, free, very fast, grand condition; trial; 9, nearest offer secures.—7, Upton Lane, orest Gate.

ILEY Tricar, 5 h.p., 1908 model, steel studded car tyre on back wheel, per-ct; £58.—H., 35, East Street, Baker Street, ondon, W.

h.p. W.C. Perfection Tricar, open frame, wheel steering, two speeds, clutch, eliable; £25, if sold this week.—Tew, 79, romley Road, Walthamstow.

HŒNIX Trimo, 4 h.p. Centaur engine, Phœnix two-speed gear, handle start-g, fan-cooled, chain drive; any trial; £20. Yarwood, Greenbank, Northwich.

1 h.p. Stevens, w.c., Chater-Lea open 2 coach, two-speed, wheel steering; hoto; cost £70, bargain, £28, or 3½ h.p. and ash.—27, Albert Road, Hale, Cheshire.

RICAR, 3½-4 h.p., free engine, fan-cooled, handle starting, bargain, £15; also 3½ p. Humber motor cycle and trailer, coach-uilt, £12.—H., 112, New King's Road, Ful-am.

907 Rex Triette, as runabout, 5¼ h.p., powerful, new condition, safe in all eathers; sell cheap; 2¼ tyres; further par-iculars on application.—D. Moffitt, Art tudio, Accrington.

EAGLE Tricar, 4½ h.p., De Dion engine, water-cooled, two speed, £35; wanted, h.p. Riley, cheap, or exchange Motosa-oche, 1908 model, spring forks, just cost £32, ale price £25.—Lord, Whitworth Road, Roch-ale.

h.p. Wolf, w.c., coach-built, two speeds and free, spare cover and tubes, ac-essories, tools and spares, thorough work-ng order; trial given; cash offers wanted. -Briggs, Grayshott, Hindhead, Surrey.

907 9 h.p. Riley Tricar, run 1,000 miles, in splendid condition, fitted with uggage carrier, lamps, horn, and tools, pare steel studded cover, unused, and ther spares; £73; 3½ h.p. motor cycle of ood make taken in part payment.—Alex larkness, Friars View, Jedburgh, N.B.

4-16 h.p. Daneville Tricar, fastest ever constructed, prize winner all com-petitions, not a racing mount, but very eliable, genuine touring machine, driven omfortably by lady, best fittings through-ut, condition as new; trial given bona-fide urchaser; £75.—Pattison, 294, Kennington ark Road, S.E.

RELIABLE 6 h.p. Riley Twin, three speeds and reverse, never had mechanical top, wind screen, new tyres, £8 Palmer n back, many improvements, lamps, with eparate generator; any trial; fully guar-nteed; tools and spares, faultless; £75, or xchange with cash for 9 h.p. Riley car.—nowden, Kingsgate, Broadstairs.

MAGNIFICENT Powerful J.A.P. Tricar, 8 h.p., three cylinders, large fan, patent vorm drive, coach-built, and luxuriously prung, disc clutch, two speeds, slide con-rol on wheel, Palmer cord tyres and Grose-ion-skid, large silver-plated side lamps, etc., ll the latest improvements embodied; see t; wife too nervous to ride in front; car nly two months old; cost £120, sacrifice £76.—Address, No. 141, *The Motor Cycle* Offices, Coventry.

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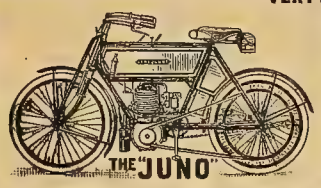

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CHATER-LEA Sidecar, Dunlop, practically new; £5 5s.—77, Mitcham Road, Tooting.

MONTGOMERY Sidecar, 26in., new condition; offers.—Lockwood, Steel Foundry, Southbank.

MONTGOMERY Sidecar, cane body, good condition; £4 10s.—123, Seaview Road, Liscard, Cheshire.

MONTGOMERY Flexible Sidecar, good condition; £5.—Lyndhurst, Shooter's Hill Road, Blackheath.

CHATER-LEA Sidecar, new, upholstered red, less tyre; £5.—Willowbrook, Rutland Road, Catford.

FORECAR, side stays, band brakes; £5.—Hinsley, grocer, Surrey Road, Newlands, Peckham Rye.

MONTGOMERY Sidecar, excellent condition, upholstered in green; £6.—Bent, 37, Tudor Road, Leicester.

AUTO Phaeton Sidecar, 26in. wheels, coach-built body, brand new; £7 10s.—Sembill, jeweller, Finchley, N.

MILLS-FULFORD Forecar, two brakes, fit any bike, splendid condition; £2 10s.—Mead, draper, Croxley Green, Herts.

STAMFORD HILL.—Our famous sidecars fit any machine, £4 18s. 6d.; two s.h., £4 5s. each.—128, High Road, Tottenham.

CHATER-LEA, unused, upholstered, cane, 26in. Moseley motor tyre; offers.—Stevenson, 4, Annetwell Street, Carlisle.

MONTGOMERY Sidecar, splendid condition, flexible joints, apron; £5 10s.—Moore, 27, Curzon Street, Long Eaton, Notts.

MONTGOMERY Sidecar, light, wicker, unpunctured, in first-rate order, fit any machine; £4 cash.—Taylor, Potterspury, Northants.

MILLS-FULFORD art cane forecar, spring frame, apron, cushion; £3; less tyres.—G. Humphreys, 38, Chance Road, Wood Street, Walthamstow.

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SIDECAR, good condition, fit any frame, 26 motor tyre, only wants seeing; sacrifice £4 15s.; approval.—C. A. Edgar, 123, Holloway Road, London, N.

MILLS-FULFORD Forecarriage, art cane, well upholstered chair, 26in. wheels, strong, fit anything, adjustable stays; £5.—Pinson, ironmonger, Walsall.

RIGID Sidecar, fit any machine, left-hand, 28in. wheel, one spare, box under car, apron and accessories, good condition.—Hoddle, 130, Harris Street, Camberwell.

FORECAR Attachment, no tyres, wheels 26in. by 2¼in., band brakes, long double side tubes, £4 10s.; Fuller's 35 amp. accumulator, 15s.—4, High Street, Stoke Newington, N.

MILLS-FULFORD Ten-guinea Sidecar, as new, not run 100 miles; rigid, fits either side, upholstered green, 26 by 2 A Won Clincher, complete with fittings; £5 10s.—Wills, 130, Walworth Road, London.

STRONG Light girder-built Forecar Attachment, pillar steering, convertible to any machine, long stays, wide wheelbase and footboards, new; £3 10s., near offer.—Cam, jun., New Street, Worcester.

OAKLEIGH Sidecars.—There were more sidecars of a certain make for sale last week than any other make. Why? Ever see any Oakleigh sidecars second-hand? No. Motorists know when they have a good thing, and stick to it. They never part with an Oakleigh. Out of the 4,000 odd that we have built only one has been sold second-hand through these columns. No wonder all the largest firms all over the world are stocking them. Our latest frame has caught on. All bent in one piece of tube. Fit any make of machine without alteration; price £5, as usual.—Oakleigh Motors, Ltd., 65a, Rosendale Road, West Dulwich.

MOTOR TRICYCLES.

2½ h.p. De Dion, nearly new, good hill-climber; any examination or trial; £10, bargain.—Quenby, Park House, Hitchin.

SINGER Motor Tandem Tricycle, 3½ h.p., magneto ignition, engine in front wheel, all in good condition, guaranteed reliable; will take two up all reasonable hills; cost 90 guineas; offers.—Moss, Wem, Salop.

ABINGDON Tricycle, bucket seat, live axle, free engine, 4½ h.p. Stevens engine, Longuemare, Clinchers; bargain.—John Stanton, Merridale Road, Wolverhampton.

TRICYCLE, 3½ h.p. Peugeot, two speeds, clutch, Longuemare, 2½in. Michelin, water-cooled, footboards, accessories; £10; seen by appointment.—Kibbler, 1, Linthorpe Road, Stamford Hill.

QUADCARS

PHŒNIX Quadcar, 7 h.p., in new condition, any expert's examination; £40 for quick sale.—Wilson, Beechwood Stables, Reigate.

PHŒNIX Quadcar, 1907, magneto, interchangeable front seat and bonnet; what offers?—Whitehead, Broadgate, Preston.

ENFIELD-DE DION Quad, 3 h.p., two speeds, Longuemare, excellent condition; £15.—"Threlkeld," Locket Road, Wealdstone, Middlesex.

PHŒNIX Quadcar for sale, perfect condition; cost £120, with numerous extras, accept £55, or good motor bicycle and cash.—Seen at Wauchope's, Shoe Lane.

3¼ h.p. Quad, De Dion engine, water-cooled, two-speed gear, splendid order; first cheque £10 secures or exchange good motor bike.—T.R., 212, High Road, Lee.

3 h.p. Auto Quadcar, M.M.C. engine, two speeds, tyres uncut, condition as new, seats side by side, climb anything; £15, or near offer.—Cole, 71, Rattray Road, Brixton.

MANCHESTER.—Phœnix Quadcar, 8 h.p., two-cylinder, in very good condition, £50; and another, identical, but in absolutely first-class condition; no better quadcar on the road. £55.—V. Foxwell Gray, 262-264, Deansgate, Manchester.

PHŒNIX Quadcar, 8 h.p., water-cooled, splendid condition, magneto ignition, numerous spares; may be seen at Surbiton; exceptional bargain, 50 guineas cash, for immediate sale.—Letters, Owner, c/o Zenith Motors, Ltd., Finsbury Park.

FOR Sale, Phœnix Quadcar, four-cylinder, 12-16 h.p. Fafnir motor, two speeds and reverse, Continental car tyres, non-skid drivers; marvellous hill-climber; too fast for owner; cost £170 April, 1907, price £95; ready for road; any trial.—395, Moseley Road, Birmingham.

3 h.p. Genuine De Dion, water-cooled, Dupont two-speeds and free, extra wide front seat, coach-built, ample luggage room, long wheelbase, complete with three lamps, tools, and full set spares, all first-class condition; £35, or near offer.—Hargreaves, Windyhaugh, Kendal.

CARS FOR SALE.

6 h.p. Rover Car, 1907, condition as new, with hood, Stepney, etc.; £95.—Below.

6 h.p. Rover, excellent order, wood wheels, late 1906; £68.—Below.

10-12 h.p. Four-cylinder Humber, side entrance; £125; exchange entertained.—Harold Lambert, 26, Pimlico Road, S.W.

4½ h.p. De Dion Car; any trial; sacrifice £19.—7, Broad Walk, Stratford-on-Avon.

MILWAUKEE Steam Car, seats two good order; £21, or exchange.—98, Potternewton Lane, Leeds.

8 h.p. De Dion-Eagle car, two-seater, two speeds, reverse; £35.—Howarth, engineer, Padiham, Lancashire.

5½ h.p. Aster, three speeds, two bucket seats, equal artillery wheels; £30.—6, Poulton Road, Southport.

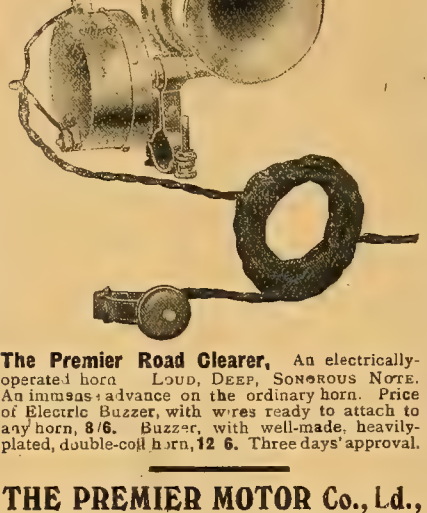
AN Alldays 5 h.p. Voiturette, in good running order; price £30; by appointment.—1, Ellis Street, Sloane Street, S.W.

15 h.p. Darracq, tonneau, push pedals, perfect order; any trial; £125, a bargain.—Roberts, Washington Road, Worcester Park.

Two Good Lines

sent on THREE DAYS' APPROVAL.

The Premier Tubular Stands and Carriers. Made to fit all makes of motor cycles. Easily attached, beautifully finished in black or aluminium. Plated clips. Stands, 7/6; Carriers, 8/6. Three days' approval.



The Premier Road Clearer, An electrically-operated horn LOUD, DEEP, SONOROUS NOTE. An immense advance on the ordinary horn. Price of Electric Buzzer, with wires ready to attach to any horn, 8/6. Buzzer, with well-made, heavily-plated, double-coil horn, 12 6. Three days' approval.

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ASTON ROAD, BIRMINGHAM.

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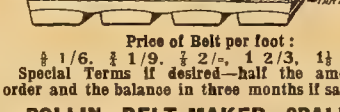
40, Jubilee Road, Doncaster, May 12th, 1908.

Dear Sir,—I am very pleased to inform you that the sample Centipede ⅞in. belt you sent me gives every satisfaction. It is the best belt I ever used, and I'm no chicken in motor matters. It "grips" and is beautifully clean, practically free from stretch, very flexible, and my machine runs faster with it than ever before. Trusting you may have the success you deserve,

Yours faithfully, J. H. Wilkinson.



Price of Belt per foot:
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Special Terms if desired—half the amount with order and the balance in three months if satisfactory.

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"QUADRANTS."
A large stock of parts, still to be cleared. Write for latest List.
REG. SAMSON,
232, LADYWOOD RD., BIRMINGHAM.

CARS FOR SALE.

35-50 h.p. De Dietrich, tonneau de lux £185.—190, Mellison Road, Tooting.

5-6 h.p. Two-seater, first-class condition Cape hood; trial.—118, Highbury Hi

12-16 h.p. Panhard, tonneau, four-cylinde perfect; £65.—190, Mellison Road, Toc ing.

SMART Two-seater, 6½ h.p. Aster, sloping back; £47 10s.—Kent, 12a, High Roa Lee, S.E.

6 h.p. New Orleans Car, perfect condition new Dunlops; sacrifice; photo.—Sale Haverhill.

12-16 h.p. Provincial, thorough runnin order; cheap; must sell.—18, Hailsha Avenue, Streatham.

8 h.p. M.M.C., in perfect condition; £55, exchange.—Colville Works, Linden A cade, Chiswick.

16-20 h.p. Corre, tonneau, four-cylinde screen and hood; £125.—190, Mellis Road, Tooting.

14-16 h.p. Daimler, side entrance, fou cylinder, four speeds; £100.—190, Me lison Road, Tooting.

10-12 h.p. Morris, two-cylinder, tonnea enclosed radiator, perfect; £38. — 4 Wimbledon Road, Tooting.

5 h.p. Renault Car, three speeds, tw seater; £20, or exchange good trica —84, High Street, Daventry.

6-8 h.p. Pick, two-seater, splendid cond tion; £35 10s., or exchange tricar.—7 Church Street, Camberwell.

5½ h.p. Humber, two-seater, splendid co dition; £35 10s., or exchange tricar. 73, Church Street, Camberwell.

14-16 h.p. Daimler, four-cylinder, tonnea fast, silent, reliable, as new; £82 10 —43, Wimbledon Road, Tooting.

NEW Chassis, equal artillery wheels, pres ed steel frame, 9 h.p.; £48, cost trebl —Motor, 79, George Lane, Catford.

DE DION-PROGRESS Car, 3½ h.p., good co dition; £15, or exchange motor cycle. Sevenoaks Motor Company, Sevenoaks.

6 h.p. Argyll, two-seated, small car, thre speeds, cardan drive, tyres good cond tion; trial; £25.—Frank Gale, Caversham.

16-20 h.p. Pipe, tonneau, four-cylinde hood, four speeds, in excellent co dition; £85.—43, Wimbledon Road, Tooting

4½ h.p. De Dion Two-seated Car, thre speeds and reverse; £38, or exchang tricar.—H. Hicks, Snaresbrook, South Wooc ford.

25-30 h.p. Four-cylinder Touring Car, rel able, very fast; £85, accept tricar o motor cycle in part.—Capt. Hyne, 11, Killio Road, S.W.

8 h.p. Aster, three speeds and reverse grooved Dunlops, tonneau, lamps, etc. week's trial allowed; £45.—Brown, 66, Gran Parade, Harringay.

6½ h.p. Peugeot, tonneau, three speeds an reverse, artillery wheels, cardan drive; 40 guineas; appointment.—1, Town ley Road, E. Dulwich, S.E.

6 h.p. De Dion, two-seater, sound reliabl car, child can drive it; £25; car want ing repairs part exchange.—Wood, 50, Vic toria Road, Stroud Green.

SUNBEAM-MABLEY, De Dion engine, bes condition throughout, a reliable littl runabout; £27 10s.—Chemist, 187, St. Ann' Road, South Tottenham, N.

SIMMS Tonneau, single cylinder car, thre speeds and reverse, 810 by 90 equal ar tillery wheels, very good condition; £35.— 128, High Road, Tottenham.

£16 10s.—10 h.p. Pick, two-cylinder, under bonnet, Collier tyres, unscratched, two seated body, fine condition.—Lifeaver, 21 Pleydell Avenue, Upper Norwood.

7 h.p., two cylinders, two speeds, reverse Longuemare, expanding clutch, two seater, complete except coil; £18.—Cassell's 66, Marvelle Road, Fulham, S.W.

TYPE de Course, latest model Rover car 6 h.p., entered as test in London to Edinburgh 24 hrs. run, winning gold medal now being returned to paintshop, any colour to suit purchaser, weighs 8 cwts. fitted with Kempshall tyres (unpunctured) price £120.—F. Dee, Grafton Road, Worthing.

EXCHANGE.

h.p. Quadrant, spray, fine order; 10 guineas.—Below.

3¼ h.p. Rex, 1904, low seat, Palmers, very efficient silencer, perfect order; 10 guineas.—Below.

NEW Harvey-Frost Model A. Vulcaniser; cost 10 guineas, £5 18s. 6d.—Below.

NEARLY New 10-stop American Organ, in walnut; cost 17 guineas; will exchange for motor bike.—Below.

1½ h.p. Crossley Gas Engine, in perfect condition; exchange motor bike or piano, £10.

ANY of Above, cash or exchange.—Holmes, Mill Hill, Cowes.

3¾ h.p. Excelsior, Palmers, non-skid; cash, or exchange.—45, Infirmary Road, Sheffield.

EXCHANGE (Yes), we can suit you; we have them.—Millhouses, Motor Exchange, Sheffield.

TRIUMPH, 1908, wanted; exchange twin N.S.U. (magneto), almost new, or sell.—Stoddart, Balerno.

EXCHANGE nearly new lady's, also gent's cycle, for modern motor cycle.—Smith, Ford Street, St. Mary, Nottingham.

EXCHANGE, Gent's Push Bike and accumulator for pair 26 by 2 beaded tyres and ⅜in. belt.—Johnson, jeweller, Selsey.

EXCHANGE, Car Frame, partly finished, for motor cycle or tricar, or sell.—Gurney, 33, Beaufoy Road, Battersea.

EXCHANGE, 2 h.p. Motor Cycle for sidecar, 26in. wheels, to fit twin Rex, or sell £8 10s.—Herman Lacey, Barton-on-Humber.

VIOLIN, Strad model, used 23 years, powerful tone; would exchange for light motor bicycle.—40, St. Kilda Road, Bath.

EXCHANGE, No. 1 Beeston Humber push bike and cash, adjustment for motor cycle.—A. Simmons, 6, High Road, Kilburn.

EXCHANGE, 2¾ h.p. Minerva, 26in. wheels, good condition, with cash, for good make and higher power.—Jarvis, Hertford.

FINE Twin Rex for £4 and 1907 3½ h.p. Rex, or level exchange for 1907 3½ h.p. magneto Rex.—Motor Exchange, Westgate, Halifax.

LARGE Portable Wood House, with bench, vice, tool racks, exchange passenger cycle or tricar.—Gray, East Norton, Leicester.

2½ h.p. Motor Bike, in perfect order, for good castor wheel sidecar and cash, or sell £8 10s.—Syred, 1, St. James Terrace, Farnham.

MOTO-REVES, 1908 models, immediate delivery; second-hand motor cycles taken part exchange.—Crisswell's Garage, Newmarket.

2 h.p. Quadrant, and Edison's electric phonograph (cost £40), exchange higher power.—Taylor, "Holmewood," Havelock Road, Luton.

MOTOSACOCHES, 1908 models; second-hand motor cycles, foreign and British stamps taken in part exchange.—Motors, 41, Green Street, Cambridge.

MOTOR Cycle, genuine 2¾ h.p. De Dion, new Dermatine, Longuemare, Palmer, Clincher, exchange lathe, brazing hearth, offers.—Lee, Charlotte Street, Walsall.

EXCHANGE, 3½ h.p. Humber Tricar, two speeds and free engine, chain drive, for 3½ h.p. motor cycle, or sell £15.—Brooker, Grotto View, Weybridge.

EXCHANGE is no robbery! Why not part with that old hag for a new 1908 model? Any make quoted upon request; cut prices.—Maude's, Powell Street, Halifax.

EXCELSIOR, 2¾ h.p. M.M.C. engine, surface and spares, also trailer, in good going order, for heating apparatus to put in greenhouse, 12 by 8, and cash.—121, Broad Street, Birmingham.

EXCHANGE, 3 h.p. Bradbury Motor, in splendid condition; will take trailer for low frame, three-speed push bike, and cash, or sell.—E. G. Head, 33, Norman Road, Faversham, Kent.

EXCHANGES are arranged at Wauchope's.—Second-hand machines are allowed for in part payment for new models of any leading make.—Wauchope's, 9, Shoe Lane, Fleet Street, London.

TYRES! TYRES!! TYRES!!!

Kindly note, we are special agents for the famous Shamrock all-rubber non-skid covers, also Goodrich and Palmer Cord. Deliveries of all sizes from stock.

10/- for your old Cover.

	Shamrock.	Goodrich	Palmer Cord.
24 × 2¼	49/- ..	— ..	—
24 × 2½	53/- ..	— ..	59/3
26 × 2	48/- ..	40/- ..	43/6
26 × 2¼	50/- ..	40/- ..	58/9
26 × 2½	54/- ..	— ..	59/3
28 × 2	— ..	— ..	50/3
28 × 2¼	— ..	— ..	63/6
28 × 2½	— ..	— ..	64/3

We allow 10/- for your old cover in part payment for any of the above. 5/- allowed for your old cover in part payment for any other make of tyre. Write for list 'B.'

Don't throw that old cover away.

Have it fitted with a Shamrock, or Goodrich, all rubber non-skid band. Time taken **3 days.**
Our Price 21/-. Including fitting.

Note! "Hella" N.P. Searchlights (Car pattern), complete with **large generater. Our Price 25/-.** (3 days' approval.)

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THE "R.O.M." is the only synchronised contact breaker made for motor bicycles, and means **MORE POWER, EASIER STARTING, SMOOTHER RUNNING.**

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TREMENDOUS SAVING
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For MOTOR CYCLES and CARS.
Write to the Sole Manufacturers:
The CITY IGNITION CO.,
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FOR ALL PARTICULARS.

EXCHANGE.

EXCHANGE, 1906 Minerva, for twin and sidecar.—Ernest Taylor, Ryhill, Wakefield.

HIGH Speed Trembler Coil, exchange for 28 by 2 covers.—Turner, Burlington Road, New Malden.

SMART Tricar, 5 h.p., good as new, for gramaphone and cash.—37, Knott's Green Road, Leyton, E.

EXCHANGE, 2¾ h.p. Clyde, magneto, faultless, and cash, for 3½ h.p., or sell £12.—Foy, jun., Wokingham.

3½ h.p. Tricar Engine for 3 h.p. motor cycle engine, vertical; sell £3 10s.—5, Kingcroft Road, Harpenden.

EXCHANGE, 3¼ h.p. Rex cycle for twin or good single engine.—W. King, Gosport Street, Lymington, Hants.

OSBORNE Four-speed Pulley, perfect, for free engine adjustable pulley and cash.—Mawson, Draper, Morecambe.

WANTED, Your Present Mount in part payment of any 1908 make; keen quotations.—Farrar, Square Road, Halifax.

TURCO Electric Vulcaniser, for good 20 amp. accumulator, Dinin preferred.—Laxton, Postmaster, Rippingale, Bourne.

WANTED, 3½ h.p. Triumph and cash in exchange for Phœnix quadcar, or sell for £55.—Garaged at Wauchope's, Shoe Lane.

MOTO-REVES, 1908 models from stock; old machines taken in part exchange.—Colville Works, 9, Linden Arcade, Chiswick.

EXCHANGE, 3½ h.p. Excelsior, spray, trembler, as new, for Motosacoche or other lightweight, cash adjustment.—5, Fleet Street, Swindon.

7 h.p. Wolseley Car, belt drive, good running order, for motor cycle and little cash.—Harper, 14, Market Square, Wellington, Salop.

TWO-CYLINDER Car, water-cooled, two speeds and reverse, gearbox, expanding clutch, Longuemare, two-seated body, all complete except coil; £18.

3½ h.p. Fafnir, perfect condition, spring forks, Palmers, etc., good climber; £10, or exchange both for good twin or four-cylinder F.N.—Cassell's, 66, Marville Road, Fulham, S.W.

5½-6 h.p. Beeston Humberette, in splendid condition, for good make motor cycle with two-speeds and cash.—J. Baker, Halwell, Beaworthy.

QUARTER-PLATE, or Film Folding Pocket Camera, telescopic stand, all accessories, for new accumulators.—R. Layland, Beechfield, Wigan.

£65.—Two-seater, 6-8 h.p., cardan drive, push pedals, three speeds, reverse, also Riley car, sell or exchange either.—Owner, 21, Balfour Road, Ilford.

EXCHANGE, for push bike and cash, 2¾ h.p. motor cycle, Chater-Lea, Palmers, long handle-bars, Longuemare; photo.—Lindsay, 281, High Street, Borough, S.E.

7 h.p. Two-seater Car, three speeds, reverse, up-to-date, splendid condition, for high powered Phœnix quadcar.—Hides, 963, Penistone Road, Owlerton, Sheffield.

EXCHANGE or sell, water-cooled tricar, wheel steering, perfect, like new; £35, would consider three-seater tricar or small car; trial given and expected.—Ashford, 2, Horton Street, Derby.

EXCHANGE, Phœnix Trimo, 5-6 h.p. twin Peugeot fan-cooled engine, two speeds, wheel steering, in first-class condition, for good motor cycle and cash, or sell £40.—21, Bentley Grove, Leeds.

LLOYD'S Free Engine Clutch, complete with sprocket and chain, in perfect condition; exchange for Osborne variable pulley or two-speed gear.—Mack, 151a, Queen's Road, Manchester.

SINGLE-SEATED Runabout, 5 h.p. Bercley twin, wheel steering, bucket seat, direct belt drive, tyres perfect, newly painted; would exchange for good single or twin magneto motor cycle, value £28.—Long and Co., Witney, Oxon.

EXCHANGE, 5 h.p. Humber tricar, open frame, wheel steering, coach-built seats, two speeds, Palmers to front, studded car tyre to back, used very little, for motor cycle and cash, or sell £37 10s.—56, Bentley Lane, Meanwood, Leeds.

EXCHANGE.

LADY'S and Gent's Back Pedalling Cycles, 5 by 4 stand camera, all perfect, for 3 h.p. and sidecar.—Statim, 65, Bradford Terrace, Bircheshead, Hanley.

FLEXIBLE Sidecar, 26in. wheel (£4), fit any machine, Osborne four-speed gear and free engine (£2), both perfect, would exchange above for gent's push cycle.—Frank Crealy, Hosier, Eastbourne.

EXCHANGE, 3½ h.p. quad, two speeds, water-cooled, fast, needs slight repair, photo, for first-class cycle and cash, or motor cycle; reason, no room.—Write, Cooper, 16, Reading Road, Sutton.

EXCHANGE, 3½ h.p. De Dion w.c. Tricar, two-speed, wheel steering, non-skid back, for magneto motor cycle, Triumph preferred; cash adjustment.—14, Lyme Grove, Old Trafford, Manchester.

3½ to 4 h.p. Excelsior Motor, inclined engine, splendid condition, climb Dashwood; £13; photo; would exchange good rigid sidecar and cash.—L. Smith, Queen's Road, High Wycombe, Bucks.

EXCHANGE, 4 h.p. Twin-cylinder N.S.U. magneto, perfect running order, with spare cover, 2½in. tyres, spare valves, carrier, stand, lamp, tools, for 1907 Triumph and £5, or sell £36; any trial.—Ballantyne Kellar, Woodstock Road, Bristol.

WANTED.

WANTED, belt rim brake.—J. Henderson, 123, Ullet Road, Liverpool.

3½ to 5½ h.p. Twin or Single, low frame. — A., 22, Rochester Terrace, N.W.

WANTED, 2½ to 3 h.p. Engine or parts. — B., 10, Craven Terrace, Sale, Cheshire.

WATER-COOLED Engine, 3½-4 h.p.; cheap. —Wilson, 88, Trinity Road, Wimbledon.

RACECOURSE Garage, Doncaster, wants to purchase modern motor cycle for spot cash.

WANTED, Sidecarriage, 24in. wheel.—Particulars to Scorrer, 9, St. Luke's Street, Hull.

WANTED, 6 h.p. engine, water-cooled.—13, Nelson Street, King's Lynn, Norfolk.

WANTED, 3 or 3½ h.p. Triumph Motor Cycle.—Hodgson, engineer, Louth, Lincs.

COVER wanted, cheap, 26 by 2½, beaded edge. — Hawkins, Honeys, Twyford, Berks.

WANTED, 2 or 2½ h.p. Engine and Carburetter; no crocks.—253, Bath Road, Hounslow.

WANTED, Old Accumulators; best price given.—Motories, 3, Arley Grove, Armley, Leeds.

SIDECAR Wanted, castor wheel or rigid; send lowest price.—G., 36, Tavistock Place, W.C.

WANTED, 1¾ h.p. Minerva, low built, fair condition; cheap for cash.—McKaig, New Radnor.

WANTED, forecarriage, band brakes, new tyres; cheap.—P. Holland, Crown Bank, Hanley.

WANTED, Locomobile Boiler, complete, reliable.—Mason, 123, Park Road, Newcastle-on-Tyne.

WANTED, Triumphs, or any good make; also sidecar, for cash.—5, Heath Street, Hampstead.

RILEY or Singer 9 h.p. Tricar wanted; must be low price for cash.—529, Fulham Road, London.

WANTED, Jap engine, 26 by 2½ tyres, hubs, brake, frame.—C. Strutt, 124, Dennett's Road, S.E.

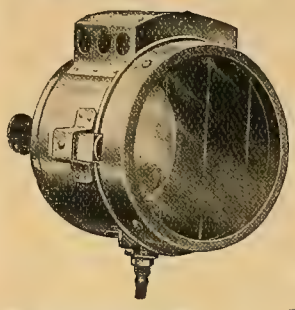
WANTED, Motor Cycle, in exchange for two large framed oil paintings, value £20.—207, Peckham Rye.

WANTED, 1906 Triumph, magneto, spring forks; cash ready.—14, Lyme Grove, Old Trafford, Manchester.

THREE or Four-speed gear and free engine pulley, complete; cheap; approval.—Blane, Cambuslang.

WANTED, Magneto Twin for sidecar; spot cash, or exchange 3 h.p. F.N. and cash.—George Purdon, Gervan.

Miss Muriel Hind



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"Coventry, June 12, '08.

I am very pleased with the lamp you supplied me with. I used it on my 5 h.p. Rex for the M.C.C. 24 hours' run to Edinburgh. It gave no trouble at all during the night, and burnt steadily and well. I find it a most satisfactory lamp in every way.

Yours faithfully, MURIEL HIND."

The PREMIER SEARCHLIGHT is 30/-, complete with **SEPARATE GENERATOR** and bracket. It is sent on **8 DAYS' APPROVAL.** It has revolutionised the lighting of Motor Cycles. MAKE NO MISTAKE: ORDER A **"PREMIER"**—ORDER A **"PREMIER" TO-DAY.**

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LATEST LIST,
SHOWING SPLENDID SELECTION OF REALLY RELIABLE MOTOR CYCLES AT BARGAIN PRICES SENT POST FREE ANYWHERE.

CASH OR EASY TERMS.

EXCHANGES ENTERTAINED.

Agency for N.S.U.

5/6 h.p. Rexette, first class condition, price **£30**
5 h.p. Twin Kerry with side-car, good order, price **£25**
3½ h.p. Centaur, free engine and side-car, price **£23**
5½ N.S.U. Twin magneto and side-car, price **£28**
3 h.p. N.S.U., magneto, a Prize Winner, price **£22**

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ADVERTISERS — Please note that Friday is the latest day we can receive advertisement copy for the following week's issue.

WANTED.

BUCKET Seat, to attach to luggage carrier of Quadrant tricar. — Douglas, Belle Vue, Malvern.

WANTED, second-hand air-cooled engine, 5 or 6 h.p., good make; cheap for cash. —Harker, Chertsey.

MOTOR Cycle, magneto, two speeds, good condition, for cash.—Snowden, Kingsgate, Broadstairs.

FORECARRIAGE for Rex, or tricar, complete, dust jacket; cheap.—134, Highgate Road, Kentish Town.

WANTED, any good make motor cycle, magneto and two-speeds preferred.—Farrar, Square Road, Halifax.

WANTED, two Palmer covers, 28 by 2, and 26 by 2, in new condition.—Strawford, 258, King's Road, Chelsea.

1907 Magneto Rex, or Triumph, or other good make, for spot cash.—Box 145, *The Motor Cycle* Offices, Coventry.

WANTED, Wheels and Crankcase for 2½ h.p. Centaure, also a good 2½ h.p. engine; approval.—A. Moyse, Kessingland.

WANTED, water-cooled head, for 2¾ h.p. M.M.C. engine, 80 mm. diameter.—H.S., 6, Blendon Terrace, Plumstead, S.E.

WANTED, 3½ h.p. Phelon and Moore, two speeds; cash.—Full particulars to F. R., 36, King Edward's Gardens, Acton, W.

1½ h.p. Motor Cycle Engine, perfect condition, cheap; also carburetter and coil.—Address, The New House, Wimbledon.

WANTED, High Powered Motor Tricycle and cash for motor launch, 25 feet, 5 h.p.—143, *The Motor Cycle* Offices, Coventry.

MOTOR Cycles in part exchange for new 1908 Moto-Reve lightweights; immediate delivery. — Crisswell's Garage, Newmarket.

PAIR of 70 by 75 Air-cooled Cylinders, automatic or M.O.V., rough, finished, or good second-hand.—F., 5, Beaconsfield Road, Bexhill.

BOOTH.—Gramaphones, typewriters, Triumph, Roc, Rexes, all models; cash waiting. — Booth's Motor Exchange, Wade Street, Halifax.

WANTED, Two Rubber Non-skids, tyres and tubes, 26 by 2¼; state price; no rubbish.—Morgan, 108, Commercial Road, Newport, Mon.

WANTED, 3½ h.p. Minerva cylinder, cheap for cash; 26 by 2, 2¼, 2½ covers, cheap for cash.—Motors, 3, Prospect Terrace, Milton, Portsmouth.

HALIFAX. — Wanted, modern magneto single-cylinder machines; any quantity bought for spot cash. — Motor Exchange, Westgate, Halifax.

TRIUMPH.—We Allow £30 for 1907, and £25 for 1906, in part payment for new machines.—5, Heath Street Motor Works, Hampstead. Tel. 2678, P.O.

WANTED, a Decent 3½ h.p., for cash, magneto and low frame essentials; seen London district.—G. Waterman, Chorleywood, Rickmansworth.

MAUDE'S wish to point out that we are now in a position to fit Bosch magnetos to all new Minervas at £5 extra.—Maude's, Powell Street, Halifax.

SIDECAR, left-hand, rigid, 26 by 2½, or 2¼ wheel, must be up-to-date and sound.—Send photo and terms for cash to Rose Cottage, Herne, Canterbury.

WANTED, partner (working preferred), with capital, about £100, in good suburban motor and cycle business.—159, *The Motor Cycle* Offices, Coventry.

WANTED, Forecar, 26 by 2¼ wheels, fit twin Rex, known make; cheap for cash; approval; deposit.—Full particulars to Woolston, Snarestone, Atherstone.

ORIENT Buckboard, 1906 pattern, or later, not under 4½ h.p., wheel steering, and steel rims preferred, fast, cheap; no rubbish; expert test; minute details required.—Price, Murray, Triermore, Kells, Meath.

WANTED, good modern motor cycle, in exchange for upright iron grand pianoforte, cost £28 10s., and Singer's latest sewing machine, cost £10 17s. 6d.; will give cash adjustment for first-class machine.—358, Stratford Road, Birmingham.

WANTED.

WANTED, Good Tricar (light).—73, Church Street, Camberwell.

WANTED, 2 to 2½ h.p. Motor, low built.—98, Gorton Street, Blackpool.

WILL Give £16 for good 3½ h.p. Quadrant.—Fox, 23, Western Place, Worthing.

TRICAR Front Seat (wide) wanted. — No. 151, *The Motor Cycle* Offices, Coventry.

6 h.p. Riley or Raleighette tricar, or similar machine.—R. Else, Leawood, near Matlock.

WANTED, 3¼ or 3½ h.p. Engine, good make, and perfect.—87, Railway Street, Southport.

WATER-COOLED Head for 70 mm. De Dion.—Dawson, 41, George Street, Edinburgh.

WANTED, Powerful Aster Engine, air-cooled, good condition.—40, Warton Street, Lytham.

3 OR 3½ h.p. Engine Carburetter, good make.—Motorman, 118, Streathbourne Road, Balham, London.

WANTED, medium power motor cycle; cheap for cash. — Barnes, 90, Montpelier, Peckham.

WANTED, Open Frame Tricar, w.c., powerful; cheap for cash. — 3, Rowdens Road, Wells, S.W.

RALEIGHETTE, or light open frame two-speed water-cooled tricar for cash.—75, Crofton Road, Plaistow.

WANTED, Rigid Forks, to fit 1906 twin Rex, also magneto for same.—Ritchie, 4, Westbury Gardens, Ealing.

WANTED, Motosacoche, magneto; state very lowest price, age, condition. — Rev., Wesley House, Kettering.

WANTED, a Tricar, in exchange for 2¾ h.p. Ariel cycle and Barlock typewriter.—5, Park Avenue, Palmer's Green, N.

WANTED, Rex Engine, good condition; makers may quote.—Bedford, 97, The Avenue, Higham's Park, near Chingford, Essex.

WANTED, Brass Torpedo Petrol Tank, cylinder, for 3½ h.p. Westfield, carrier, 26 by 2¼ tyre, leather coat.—Smith, Deadwaters, Huddersfield.

WANTED, No. 6 Frame, two 26in. wheels, belt rim, tank, three 26 by 2½ Palmer cords.—Particulars, Brown, 215, Broad Street, Birmingham.

WANTED, Water-cooled Tricar, or twin bicycle and sidecar, in exchange for pianola, practically new. — C., 76, Durham Road, East Finchley.

WANTED, 1907 or 1908 2¾ h.p. to 3½ h.p. motor cycle, spring forks and magneto preferred, complete with spares; no scraps or wrecks.—Ratcliffe, Owen Street, Leigh, Lancashire.

WANTED, to purchase for cash, Triumphs, Quadrants, Minervas, Bats, Japs, Riley and Lagonda tricars, or exchanges arranged for new models. — Wauchope's, 9, Shoe Lane, London, E.C.

WANTED, 2¾-3½ h.p. Motor Cycle, will give in exchange £5 and brand new £8 8s. push bike, New Departure, green and gold, all latest improvements.—26, Church Gate, Loughborough, Leicestershire.

WANTED, any number of good magneto second-hand motors, F.N.'s, Minervas, Triumphs, N.S.U., Vindecs, etc., by far the best prices given for good stuff, cash, or exchange.—Maude's, Powell Street, Halifax.

WANTED, low built No. 6 Chater-Lea frame, complete, with wheels, etc., in exchange for special Rudge-Whitworth road racer, cost £8, brand new. — W. G. Smith, Ivy House, Franklin Road, Jacksdale, Notts.

THE Proprietors of the patent rights of R.O.M. synchronised contact breakers are prepared to accept offers for the rights to manufacture in France; write for particulars.—Continental Motor Co., 32, Rosebery Avenue, E.C.

CYCLE Agents should read "The Cycle and Motor Trades' Review," the leading trade organ; specimen copy will be sent on receipt of trade card.—Address, "The Cycle and Motor Trades' Review" Offices, Harp Alley, London, E.C.

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HOLD ALL RECORDS.

End-to-End Record, July 9th and 10th :
Mr. A. W. Bentley, using **Dermatine Belt.**

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35 were successful, using **Dermatine Belts.**

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No other belt holds such records.
The Original Rubber and Canvas Belt.

BEWARE OF IMITATIONS.
The standard belt that is adopted by all leading manufacturers.

Hundreds of Testimonials.

BRITISH MADE.

NOTE THE PRICES.

⅝in.	¾in.	7/8in.	1in.
1/2	1/4	1/8	1/11 per ft.

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The STANLEY DETACHABLE MOTOR BELT FASTENER.

With Unbreakable Hook. Guaranteed.
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In sizes ⅝in., ¾in., 7/8in., 1in., 1/- each.
WHOLESALE AND RETAIL.

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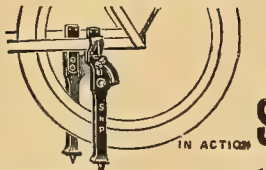

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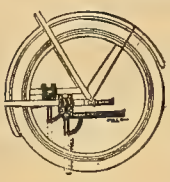

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Manufacturers,
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BIRMINGHAM, England.

WANTED.

26 by 2½ Beaded Front Wheel, front and back brakes, tandem attachment; cheap.—46, Vardens Road, Wandsworth.

WANTED, Two-seater Car or Tricar, in exchange for 3½ h.p. cycle, in perfect condition, and automatic machines to value, splendid money takers, in positions, only require one evening a fortnight to manage them, grand investment.—Lewis, Myrtle Villa, Oliver Road, Leyton, Essex.

TWIN Vindec, Roc, four-cylinder F.N., or Triumph, late 1907 or 1908, in exchange for equity of modern house, let to good tenant for three years, from September, 1907, at £34 per annum, lease about 95 years, ground rent £6 10s.—For further particulars, write, 141, High Street, Merton.

MISCELLANEOUS.

ENGINES Re-bushed throughout from £1.

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PULLEYS for any motor—

TRIUMPH, Brown, Fafnir, 4s. 9d.;

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DE DION, M.M.C., 6s. 9d.

ABOVE 4½in. Diameter extra 9d.

AXLES, cranks, spindles, handle-bars, seat-pillars, or any other parts made to pattern or sketch at lowest prices; accuracy guaranteed. — Tufnell and Co., Lightning Motor Works, Leytonstone.

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THE Best Silencer made is Aldington's patent Silent, from 10s. 6d.—Below.

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MY Footrests, reduced to 6s. 6d., are a luxury, spring rests, 17s. 6d.—Aldington, 59, Haydon's Park Road, Wimbledon.

WHIPCORD Breeches, latest cut; 10s. 6d.—J. C. Savage, 119, Donegall Street, Belfast.

ADJUSTABLE Pulleys, 4½in., 8s.; 5in., 9s.—Lee, motor engineer, 18, Somerset Road, Edmonton.

MABON Clutch, brand new; cost £3, receipt shown, 37s. 6d.—25, Sebert Road, Forest Gate.

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COW-VOICED Double Twist Horns, large size, terrific noise; usually 8s. 6d., my price 5s. 10d.—Farrar.

FARRAR'S Motor Handle-bars, 20in. long, 4s. 9d.; Lycett's patent Lightning stand, 4s. 9d. pair.

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FARRAR.—Send for my price list, pounds saved; sole agent Premier accumulators.—Farrar, Square Road, Halifax.

SMART Whipcord Motor Cycling Breeches; 8s. 6d., post free; patterns.—Meredith's, Wearwell, Northwich.

MINERVA Cylinder, 3½ h.p., air-cooled, equal to new; 18s.—Brown, 23, River Street, Clerkenwell.

MISCELLANEOUS.

WHIPCORD Cycling Breeches, latest cut; 10s. 6d.; write for patterns.—Booth, tailor, Longton, Staffs.

FOUR Solid Brass Tanks, new, 25s. the lot, suit tricar or bike.—Barnes-Moss, 335, Clapham Road, S.W.

JACK-NO-SKID, the most practical motor cycle non-skid and jack produced.—Horner's, Store Street, W.C.

JACK-NO-SKID gives absolute security against side-slip; as jack it is perfect.

JACK-NO-SKID.—Latest improvements enable easy fitting; reduction in price and weight.—Horner's, Store Street.

WATERPROOF Coats and Leggings; special value.—Horner's, Store Street, W.C.

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CHAPMAN Two-speed Gear, chain, spares, complete, £2; Goodlad speedometer, 5s. —John Glen, Callander, N.B.

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OSBORNE Four-speed and free engine pulley, suit 3½ h.p.; £2.—Brazier, 4, Charlwood Street, Pimlico, London.

TWO Twin-trembler Coils, 15s. each; ⅜in. Fishback belt, 8s., used once.—Kirkwood, Electricity Works, Shrewsbury.

CHATER-LEA Tricar Chassis, with clutch, water tank, etc.; £10 10s.—Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

PRESSED Steel Tricar Frame, 30s.; cooling fan, 12s.; 26 by 2½ tube, 4s.; coil, 7s.; accumulator, 5s.—209a, Peckham Rye, S.E.

GOOD Bentinck Trailer, Warwick tyres, 32s. 6d.; wanted, ½in. Whittle belt, as new.—Bowley, 68, Stanton Road, Ilkeston.

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BELT Rim Brakes, flexible cable, hand applied, easily fitted, stop anything; 8s. 6d., usual price 15s.—Slack's Garage, Stockport.

VALVE Lifters, complete with hand levers and flexible cable, easily fitted; 4s. 11d., usual price, 9s. 6d.—Slack's Garage, Stockport.

STANLEY-DERMATINE Belting, two-piece belts, ⅝in., 6s. 5d.; ¾in., 7s. 5d.; carriage paid.—Whitaker, Green Street Green, Orpington

EVERYTHING Made in Tanks and Radiators except a fortune. — Write for prices, A. Phillips, 2, Strathnairn Street, Bermondsey.

DRUID Spring Forks, new illustrated booklet now ready. It will interest you. Send for it to-day. — A. Drew, Conybere Street, Birmingham.

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SPRING Fork Attachments, enamelled, 9s. 6d.; plated, 10s. 6d.; usual prices 16s. 6d.—Taylor's, Motor Works, Edmonton.

GOODLAD Speedometer, 10s. 6d.; 26in. Veeder, 2s.; 26in. Clincher tube, 5s.; Lycett toolbag, 4s.; all unused.—Cadmas, 25, Cornwall Road, Bayswater, W.

OPPERMANN Two-speed Hub, free engine, internal expanding brake, belt, 26in. by 2¼in., plated, perfect; £6. — 1, Tunstall Road, Addiscombe, Croydon.

LOOK!—Bankrupt Stock. 4,000 splendid rubber motoring jackets, lined with blue serge; 10s. 6d.; carriage paid.—B. Dept., Gasson, Government, Rye, Sussex.

MAGNETOS, Magnetos taken for debt, high tension, Simms-Bosch pattern; twin, £4; single, £3 10s.; approval.—Barber, 17, Galena Road, Hammersmith, W.

MAGNETOS, Bosch type, runs on ball bearings, single-cylinder £2 17s. 6d., twins £3 10s.; guaranteed; instant delivery. —Maude's, Powell Street, Halifax.

HALIFAX.—Rubber and canvas Serratrix V belting, nothing better value obtainable; ⅜in., 9d.; ½in., 1s.; ⅝in., 1s. 4d.; 1in., 1s. 8d. per foot.—16, Westgate, Halifax.

DEFIANCE VARI-SPEED PULLEY.

Can be fitted to any make of machine.

Makes hill-climbing a pleasure.

Gear altered by the left foot.

You have absolutely free engine, and you can work it like a clutch.

Send for illustrated particulars,

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Sole Manufacturers, and also of the famous

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ADVERTISERS' EXPERIENCES OF "THE MOTOR CYCLE."

SPEAKS FOR ITSELF.

Rembrandt Studio,
Crawley,
Feb. 18th, 1908.

To "The Motor Cycle."

Dear Sirs,

It may interest you to know that of the two articles advertised in this last week's "Motor Cycle," one was sold by wire on the day of issue and the other by first post the following morning.

Altogether I received one wire, three cheques, and twenty-two applications.

This result I think speaks for itself.

Yours faithfully,
J. T. BELCHAMBER.

When buying a new machine or accessories, readers should remember that "The Motor Cycle" will speedily find a purchaser of the second-hand ones.

MISCELLANEOUS.

STRONG Carrier-stand, 5s.; spring seat-pillar, 3s., or exchange same for variable pulley for 2½ h.p. Kerry; letters only.—1, Borrett Road, Manor Place, London, S.E.

"3,500 miles and doesn't need grinding" is what a doctor says of the Druid exhaust valve; price 4s. 6d.; send old valve as pattern.—A. Drew, Conybere Street, Birmingham.

CHATER-LEA No. 6 Frame, girder forks, and long handle-bars, £3 17s. 6d.; 6 h.p. twin engine, £8 15s.; torpedo tank, 8s. 9d.; all brand new.—313, Coldharbour Lane, S.W.

THE Last Word in Belt Fasteners. — The Advance adjustable belt fastener, for use with variable pulleys; price 2s. 6d. for any size.—Advance Motor Mfg. Co., Ltd., Northampton.

MISCELLANEOUS.

BOOTH.—Wide mudguards, with stays and screws; 3in., 2s. 11d.; 4in., 3s. 6d.

BOOTH.—Double-twist horns, deep tone, 4s. 9d.; large leather toolbags, 5s. 6d.

BOOTH.—500 Fuller's Midget plain coils, 10s. 6d.; 200 Fuller's Midget trembler coils, 17s. 6d.

BOOTH Takes your old coil in part payment; part with troublesome coils.

BOOTH.—Fuller accumulators, 20 amp., 17s.; Rex type, 16s.; Minerva, 16s.; Midget, 16s.

BOOTH.—5s. 6d. allowed for your old accumulator in part payment for Fuller's.

BOOTH. — Long Motor Handle-bars, 21in., 4s. 9d.; heavier gauge, 5s. 6d.; best plating.

BOOTH.—Silent silencers, for engines to 5 h.p., very efficient, no back pressure; 3s. 3d.

BOOTH. — Stanley belting, Xl'all spring forks, N.A.B. seat-pillar, 5s. 6d.; Ariel coupler, 20s.

BOOTH.—New Antoine frame, with wheels, belt rim fitted, two cable brakes, mudguards; £5 10s. set; low built.

BOOTH.—Six accumulators, require slight repair; 1s. 9d. each.—Booth's Motor Exchange, Coronet Works, Wade Street, Halifax.

ANTOINE Spare Parts, cylinders, crank cases; state requirements. — Booth, Wade Street, Halifax.

LUCAS Acetyphote, good condition, 8s., cost 17s. 6d.; Bowden back wheel motor cycle brake, inverted lever, 7s. 6d.—H. Wheelwright, Boar's Head Hotel, Manchester Road, Bradford, Yorks.

N.S.U. Two-speed Gear, new, £3 15s.; rubber belting, equal to any elsewhere obtainable; ⅜in., 1s. 1d. foot; 1in., 1s. 6d. foot; sample sent.—Hodgson, 10, Horton Road, Bradford.

HAMMOCKS, from H.M. Dockyards, clean, white, strong canvas hammocks, 5s. 6d. each, suitable for gardens or camping out; can be sent on approval.—H. J. Gasson, Naval Contractor, Rye.

TREMBLER Coil, French make, in good condition, 7s. 6d.; Germania lamp, large size, bull's-eye lens, suit heavy bike or tricar, in excellent condition, 15s.—Millington, Goldthorn Hill, Wolverhampton.

MOTOR and Cycle Agents should read "The Cycle and Motor Trades' Review." Specimen copy post free on receipt of trade card.—"The Cycle and Motor Trades' Review" Offices, 15, Harp Alley, E.C.

2 h.p. De Dion Engine, silencer, £2; trembler coil, 9s.; 30ft. high tension wire, 5s.; 8 h.p. silencer, 10s.; 24in. Chater-Lea frame, 16s.; three-compartment tank, pump, 7s. 6d.—46, Vardens Road, Wandsworth.

AMATEUR Photographers.—Superior Enlargements (bromide) from your negatives; 8 by 6, 9d.; 10 by 8, 10d.; 12 by 10, 11d.; 15 by 12, 1s. 1d.; cash; from prints 6d. extra.—Greame, Wellesley, Whyteleafe.

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READERS Having Photographic Apparatus for sale should advertise in "Photography and Focus" Emporium, ½d. per word, minimum 9d.—Address, "Photography and Focus" Offices, 20, Tudor Street, London, E.C.

PHŒNIX Forecar Attachment, 26in. wheels, Dunlops, foot band brakes, enamel unscratched, £5 10s.; wanted, tricar gearbox and clutch, also Locomobile boiler and burner, cheap for cash.—110, Westfield Road, Wellingborough.

PULLEYS for any motor, De Dion, M.M.C., 6s. 9d.; Antoine, N.S.U., Kelecom, Rex, F.N., 5s. 9d.; Peugeot, Brown, 5s. 6d.; Triumph, Fafnir, Sarolea, Minerva, 4s. 9d.; plated, guaranteed; carriage paid.—J. Perkins, High Road, Leyton, London.

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LONG Handle-bars to own specification; 4s.—Below.

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TANKS to any specification from 5s.—Below.

MOTOR Repairs of every description.—Arrow Motor Works, Victoria Road, Peckham, S.E.

ARIEL Coupler, 15s.; Montgomery spring handle-bar, 7s. 6d.—Reid, Constabulary, Dublin.

ARCTIC Fan, double blast, 18s. 6d.; non-skid cover, 26 by 2¼, 20s.—Lloyd, Victoria Terrace, Leamington.

FIT-ALL Two-speed Gear, almost new, fit J.A.P. engine; £5. — S.H.H., 40, St Charles Square, N. Kensington.

PAIR New 26 by 2 Continental Covers (wrong size), 19s. each, 36s. pair; approval.—Cromwell House, King Street, Moston, Manchester.

GODFREY and Applebee, the Sutton bankers.—Rex and other machines supplied for cash, gradual payments, or exchange.

GODFREY and Applebee can give you better terms for exchanges than anyone else; preferential deliveries, and all machines tuned up by ourselves.

GODFREY and Applebee.—3½ h.p. Rushworth, overhead valves, footboards, light and very low, perfect order throughout; £16.

GODFREY and Applebee.—5 h.p. 1907 twin Rex, 17 guineas; magneto twin Rex, 1907, 19 guineas.

GODFREY and Applebee.—Write for particulars of the new A.G. adjustable pulley, 15s. each, money returned if not satisfied. New locking device. The only really good adjustable pulley on the market. Altered without removing belt, and wears to the last without shake or rattle.

GODFREY and Applebee. — Unbreakable motor cycle watches, with handle-bar clip, 5s. 6d.; Rex pulleys, any size, 6s. 3d., plated.

GODFREY and Applebee.—Everything supplied by us bears the famous G.A. guarantee.—9, Church Hill, Walthamstow.

HIGH-CLASS Motor Cycle Tanks, with compartment for generator, made to order in brass, copper, or tin.—Bye, Rickmansworth, Herts.

1905 Rex Handle-bar and Front Rim Brake, 5s. 6d.; 26 by 2 front wheel, 4s.; girder forks, want brazing, 3s. 6d.—23, Arden Road, Handsworth.

1¾ h.p. Motor Set complete, new, fit any strong roadster, £5 5s.; Bassee-Michel self-adjusting auto-trembler, 10s.—Woolsey, Church Street, Eye, Suffolk.

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PRICE'S Stand, Wright's spring footrests, Rex 5½in. pulley, pedals, cranks, chain wheel, 6ft. chain, 26in. wheel (off Rex); cash offers.—Mawson, draper, Morecambe.

L.A.C. Spring Forks, 7s. 6d.; Nilmelior trembler, new, 17s. 6d.; oil tank, pump, 2s. 6d.; frame, tanks, levers, 25s.; forks, new, 4s.; belt rims, 3s. 6d., 2s.—Marshallsay, West Street, Farnham.

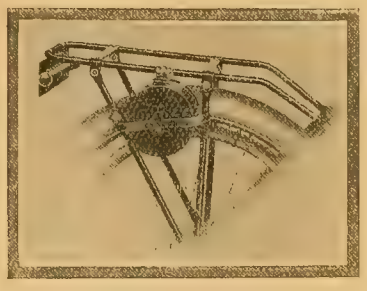
FORECAR Frame and Wheels, £2 5s.; Mabon clutch, new, £1 15s.; inch rubber belting, 10d. foot; tricar chassis, with three-speed Kent gear and back tyre, £8; No. 6 frame and wheels, tank, etc., £4 10s.—Oakleigh Motor Co., West Dulwich.

THE B. and S. Punctureproof Band is quickly solutioned inside your cover, is pliable, and does not injure the inner tube; a trial one will convince you of their worth; long distance men please note; post free, 2s.; trade supplied.—Barton, Leather Merchants, Meeting House Lane, Peckham.

LONDON Auto Co., Clapham, S.W., agents for Chater-Lea frames and fittings, and all makes of engines; No. 6 frames, £2 18s. 6d.; girder forks, 15s. 6d.; long handle-bars, 3s. 9d.; wheels, 30s. per pair; tanks from 12s.; low quotations for all other parts; illustrated frame and engine lists stamp.

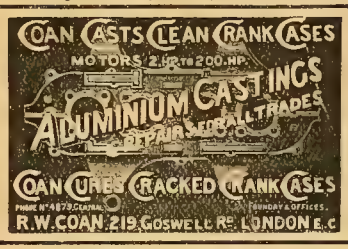
THE PREMIER
TUBE CARRIER

Is a well made metal case. It is **air** and **dust tight.** The Spare Tube is coiled away compactly, safe from **dirt** or **damage.** It can be taken out in a few seconds when required and will **not** be found to be **perished** and unfit for us, ase tubes are when carried in the old make-shift way.



As shown, it is fitted to a carrier, but it is furnished with long straps, by which it can be attached to any part of the machine at rider's choice.
Price, complete with stays, finished either BLACK or ALUMINIUM, 5/6. Sent on 3 days' APPROVAL.
Delivery FROM STOCK.
PREMIER MOTOR Co., Ltd., Aston, Rd., Birmingham.

PLANO-CONVEX LENSES, cut and polished, 3in. to 3½in 1/9, 3¾in. 2/-, 4in. 2/6, 4¼in. 2/9, 4½in. 3/-, 4¾in. 3/6, 5in. 4/-. Car. paid. Send your rim to be fitted.
PAYNE, Metchley Lane, **Harborne.**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MISCELLANEOUS.

MAUDE'S.—Two-speed gear, fit 3½ h.p. Peugeot, £3 5s.; Bosch magneto, four-cylinder, perfect, £2 10s.

MAUDE'S. — 2¾ h.p. Kelecom engine, A.O.I.V., £2 10s.; 2 h.p Givaudan, £2 5s.; Werner, 1¾ h.p., £2.

MAUDE'S.—Rip, magnetos, armature runs on ball bearings, guaranteed, easily fitted, singles 57s. 6d., twins 70s.

MAUDE'S.—B. and B. carburetter, brand new, latest model, handle-bar control; 22s.

MAUDE'S. — Longuemare spray carburetter, 18s.; mica plugs, best quality, 1s. 10d. per pair.

MAUDE'S.—Rubber goggles, 2s. 3d. per pair, low tension wire, 3½d. yard; high, 9d. per yard.

MAUDE'S.—Lathe, screw-cutter, 3½in. centres, overhead and treadle motion; £9.—Powell Street, Halifax.

LOOP Frame, with wheels, tyres, tanks, pump, handle-bars, two brakes, and mudguards; £4 10s.—110, Bath Road, Cheltenham.

ABSOLUTELY New Stanley-Dermatine belt, ¾in. by 3in.; Bassee-Michel round coil, new, 15s.; Main-Hilton stand, 3s. 6d.; plated belt rim and clips, 2s.—Poyser, Forest Lodge, Mansfield.

GENUINE Three-speeds, free engine pulleys, positive and reliable action, light, neat, durable, most simple to fit; £2, complete; patent applied for.—New Nonpareil Motor Fittings, Ash Tree Road, Stirchley, Birmingham.

MISCELLANEOUS.

SPRING Forks, Xl'all, plated, faultless; 10s.—Carr, 16, Elmbank Street, Glasgow.

MABON Clutch, equal to new, fit Vindec; 32s. 6d.—Jones, 119, South Lambeth Road, London.

100 *Motor Cycle* Editions for sale, offers; also good quarter-plate camera, 9s. — Photographer, City Road, Bradford.

CONTINENTAL 1in. Belt, 8ft., new, 9s. 6d.; exchange for ⅞in. Peugeot pulley, 4s. 6d.—4, Lodge Lane, Liverpool.

MINERVA Tank, perfect, £1; back tool tank, 12s. 6d.; Minerva carburetter, 7s. —Crabtree, Bridgend, Lancaster.

3 h.p. Calvert, vertical engine, low saddle, new accumulator; £4 10s.—Leary, 1, Mornington Place, Camden Town.

ALBION Free Engine Clutch, adjustable pulley, 6½in., fit twin Jap, not used; 50s., cost £3.—Pinson, Bridge Street, Walsall.

NICKEL Steel Valves, exhaust, 1s. 7d.; inlet, 1s. 3d.; post free; inlet, with seatings, 2s. 6d.; trade supplied.—Stake, Croft Street, Brighouse.

QUADRANT Spares, 3½ h.p. 1906 valves, 2s. each; back rim brake, complete, unused, 5s.; Watawata, 7ft. 8in. by ⅞in., 12s.; Bowden lever and wire, 5s.—54, High Street, Stourbridge.

TWO Lucas Motor Acetyphote Lamps, 10s. each; two Perfecta, motor, 6s. each; one 26in. by 2in. A Won, 9s. 6d.; 10 amp. accumulator, 6s., bargain.—Burnell, Ferrybridge, Yorks.

FAFNIR 6-7 h.p. Two-cylinder W.C. Motor, new, £15, cost £28 10s.; Simms-Bosch magneto, armature wants re-winding, 18s. 6d.; Fafnir clutch, 32s. 6d.—Riley, 14, Bridlington Street, Alfreton Road, Nottingham.

LONG Handle-bars to buyers' specification, 4s.; swan-neck saddle-pillars, ditto, 2s. 6d.; latest No. 6 frames, £3; tanks a speciality; machines cut down; smart deliveries guaranteed. — Green Bros., 14, Avondale Road, Peckham, S.E. Works: McDermott Road.

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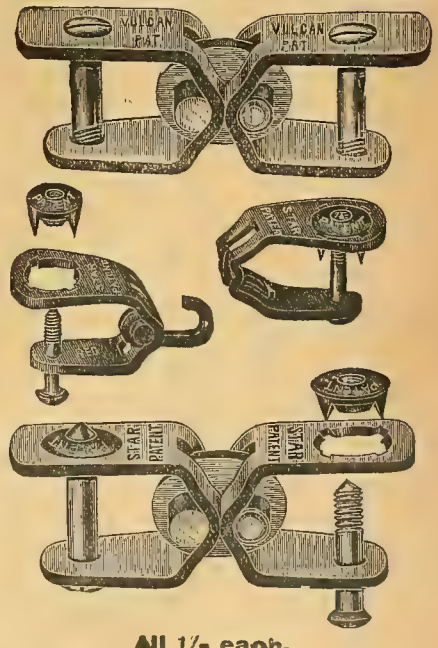

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PALMER Cover, 26 by 2¼, not ridden 30 miles, £1; two Michelin D.B. tubes, 26 by 2, brand new, 9s. 6d. each; Wright's dropped spring footrests, 10s.; Bowden belt rim brake, 9s. 6d.; Rex pulley, plated, 4⅜in., 3s. 6d.; N.S.U. handle-bars, 3s.; Rex 1906 rear cylinder, 10s.; approval; deposit.—Reynolds, Broadwey, Dorset.

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2 h.p. Lurquin Motor Bike, vertical, girders, Longuemare, wants new contact breaker, £5; Rover 3½ h.p. automatic carburetter, 10s.; 2¾ h.p. genuine De Dion engine, water-cooled, head broken, otherwise perfect, 45s.; motor handle-bars, 2s.; Millennium stand and carrier, 5s.; genuine bargains. — Wilson, 88, Trinity Road, Wimbledon.

SHAMROCK-EXCELSIOR Covers, 26 by 2¼, quite new, £4 5s. the pair; Raleighette carburetter, 5 h.p., 12s. 6d.; pair Salsbury's Flario side lamps, suitable for tricar, 22s. 6d. the pair; large brass generator, 10s. 6d.; motor cycle frame, with wheels and tyres, for inclined engine, 32s. 6d.; handle-bars, saddle, etc.—Chilton, High Street, Watford.

PULLEYS for Fafnir, 3⅝ to 4, 5s. 6d.; N.S.U., same diameter, 6s.; Rex, 1904 to 1906, same diameter, 6s.; Kelecoms, 4½ to 5 diameter, 6s. 6d.; Peugeots, same diameter, 6s. 6d.; M.M.C., or De Dion, 4in, 6s. 6d.; 4⅜in., 7s.; to suit ⅜ to ⅞ belts, all plated and post free; pulleys to suit any make of engine.—Dene Cycle Co., St. Thomas Street, Newcastle-on-Tyne.

GIVING up the Motor Cycle Trade.—Millennium carrier stands, 7s. 6d., usual price 20s.; Vim stand (starts like free engine), 6s. 3d., usual price 17s. 6d.; Phillips's brakes, 4s., usual price 10s. 6d.; Vim flexible cable brake, 5s. 6d., usual price 12s. 6d.; hand levers, and Bowden cables for valve lifters, 3s. 3d., usual price 7s. 6d.—Slack's Garage, Stockport.

STAND-CARRIERS Combined, 4s. 9d. and 5s. 9d.; large toolbags, 3s. 6d.; L.A.C. spring forks, 15s. pair; 5 h.p. Aster water-cooled engine, £9; Clarendon engines, new, 2¾ h.p., £3 each; Clarendon frames, £2 each; Jane's handle-bar switches, 1s. 9d.; Mabon two-speed gear, belt drive, £3 15s.; Antoine engine, 37s. 6d.; and various other miscellaneous goods. — Wauchope's, 9, Shoe Lane, E.C.

6 h.p. Engine, air-cooled, complete with 18in. clutch, £6; two-volt accumulators, lead cases, 8in. by 6½in., 10s.; small metal-to-metal clutch, 7in., 10s.; 3½ h.p. Rex, wants re-boring and new piston, £5, good condition otherwise; one runabout chassis, wire wheels, and three-speed gear, £5 10s.; 2½ h.p. Auto engine, £2 10s., good condition, or will take good magneto 3½ h.p. motor cycle for lot.—Swinburn, Chester-le-Street, Durham.

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FOR Sale, 4 h.p. Kelecom pulley, 4⅜in. by ⅞in., unused, 4s. 3d.; Chater single and double thumbslide control with cable, new, 6s. lot; 80 watt charging dynamo, 22s. 6d.; pair 28in. by 1¾in. wheels, with Dunlop tyres and one new tube, belt rim fitted, 21s. lot; Noble footbrake, new, unused, 10s. 6d.; Chater pedalling gear with chain, 7s. 6d.; ⅜in. Rex pulley, 2s. 6d.; wanted, speedometer, good trembler coil, horn, and acetylene headlight.—Hamilton, 116, Almada Street, Hamilton.

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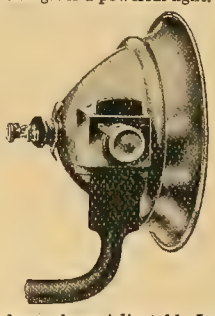

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CASH Bargains.—Motor cycle covers, wired edge, 26 by 2, 2¼, and 2½, 11s. 6d. each; 28 by 2, 2¼, and 2½, 12s. 6d. each; beaded edge, 2s. extra; motor cycle tubes, with valves, 26 by 2, 2¼, 2½, and 28 by 2, 6s. 9d. each; Kerry tricar lamps, brass or plated, 12s. 6d. pair; plated ratchet control levers, 1s. 6d.; Whitley carburetters up to 4½ h.p., 13s. 6d.; large plated double-twist horns, 6s.; rubber goggles, 2s. 6d.; good quality V belting, ⅜in., ½in., and ⅝in., at 8d., 10d., and 1s. per foot; subject to being unsold; cash with order; approval.—Bastone, 217, Pentonville Road, King's Cross, London, N.

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N.S.U. Motors (West London District Agency), latest pattern models in stock, two-speed gears, spare parts; liberal allowance for your motor in part exchange; deferred payments; trial runs by appointment.—Eagles and Co., High Street, Acton. Telephone, 556, Chiswick.

TWENTIETH Century Motor Co., Ltd., Padua Road, Penge, S.E.—2 h.p. carburetters, new, 8s.; 3½ h.p. ditto, 10s.; 6 h.p. ditto, 14s.; two-way sight feed oil pumps, new, 3s 3d.; single control levers, new, from 1s. 3d.; double, 3s.; two-to-one wheels, new, 4s. per pair; pinion circulating pumps, new, 15s.; centrifugal pumps from 10s.; back hubs for light motor cycles, new, 3s.; plain coils, new, 6s.; brass drain taps, from 4d. to 1s.; 3½ h.p. brass silencers, new, 3s. 9d.; 2 h.p. ditto, 2s.; piston, ring, and pulley castings; high voltage electric lamp holders, new, 5d.; Ediswan electric lamp holders, with switches, new, 9d.; quantity of electric lamps, about 100 volts, new, 6d. each; 1 3-16in. diameter exhaust valves, 9d.; send penny stamp for list of hundreds of second-hand and new motor parts.

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FOR Sale, 3½ h.p. four-cylinder F.N. motor cycle, in excellent condition, just overhauled, very fast, fitted with Simms magneto, Lucas lamp, new Palmer cord tyre, new speedometer and cyclometer, handlebar control, tools, etc., complete; price £25. —Can be seen and tried at Williams Bros.' Garage, Lytham.

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FOR Sale, forecar, 4½ h.p. Minerva, twin Chater-Lea, Mills and Fulford forecar spares, etc.; exchange two-seated car, o sell £40; in perfect order; or offer.—Box No 161, *The Motor Cycle* Offices, Coventry.

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EXCHANGE Westley-Richard hammerless ejecter, in leather case, value £30, for 3½ or 5 h.p. twin N.S.U., or Triumph and forecarriage.—Wallis, Hykeham, Lincoln.

FOR Sale, 3½ h.p. Minerva, perfect, Clincher tyres, Watawata belt, two Peto-Radford accumulators, Carpentier coil, Brooks saddle, low, spares; £20 or near offer.—Riches, Reigate.

FOR Sale, tricar, 5 h.p. Minerva, Palmer cord tyres, upholstered body, splendid condition, ready for riding; £25. — Wm. Howarth, New Road, Belper.

FOR Sale, Phœnix Trimo, 7-9 h.p. Peugeot engine, wheel steering, open frame, excellent condition, scarcely run 1,000 miles Peter-Union studded tyre, also spare back tyre, lamps, tools, etc.; £60.—Johnson, Pontardawe, Glamorganshire.

FOR Sale, 2¾ h.p. Royal Enfield tricycle. De Dion engine, free engine clutch perfect order; £6 10s.—Stevens, 4, Goldhawk Mews, Shepherd's Bush.

FOR Sale, 2½ h.p. Singer engine, £1; 26 by 2 Palmer, good condition, 7s.; 28 by 2 Clincher, 7s.; 28 by 2 Dunlop, wired, 6s.; plain coil, 5s.; stand and carrier, 4s.; new bucket seat for tricar, 18s.; 28 by 2 front wheel, tyre, and tube, 15s.; 24 by 2¼ Peter-Union tyre, 6s.—Stevens, 4, Goldhawk Mews Shepherd's Bush.

FOR Sale, 3½ h.p. Jap, with sidecar, guaranteed perfect order; given up riding; sacrifice £20. — Wm. Archard, White Waltham, Maidenhead, Berks.

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FOR Sale, 6 h.p. Century tricar, w.c., in thorough good condition, two-speed, free engine, climb anything; £30, or nearest; car tyres, two spare covers and tubes, four lamps.—Richardson, High Street, Gillingham, Kent.

FOR Sale, 2¾ h.p. F.N., in splendid order, good hill-climber, new Grose cover on back, new tubes, satisfaction guaranteed; only £12.—West, High Street, Goring, Oxon.

FOR Sale, 2 h.p. Werner, guaranteed condition, two brakes; bargain, £6 10s.—15, Dockley Road, Bermondsey.

FOR Sale, 2 h.p. Quadrant, new tyres, spring forks, seat-pillar, powerful hill-climber, perfect running order; £8, or nearest offer.—175, Sandringham Road, Dalston, N.E.

EXCHANGE Rex Pulley, 4½ by 1in., for ⅞in., or 8ft. ⅞in. belt.—H., 54, Terminus Road, Eastbourne.

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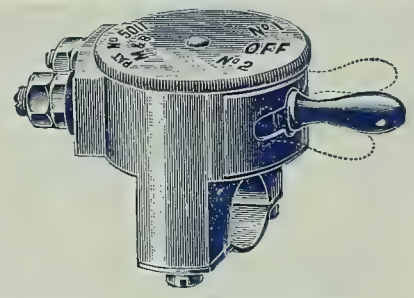

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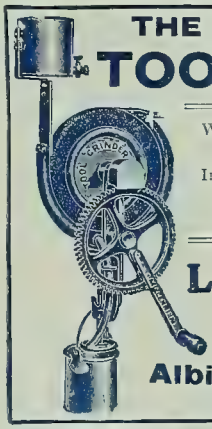

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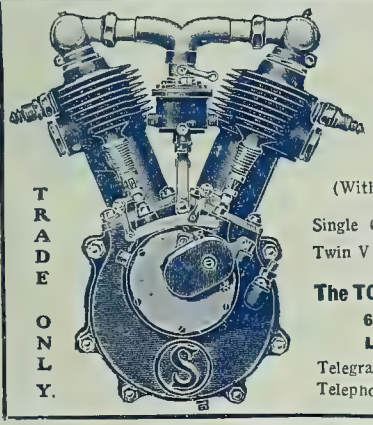

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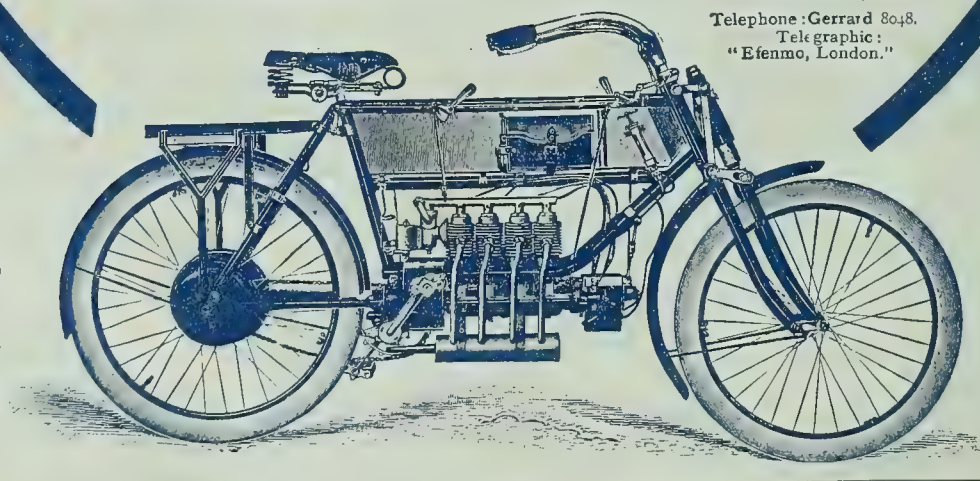

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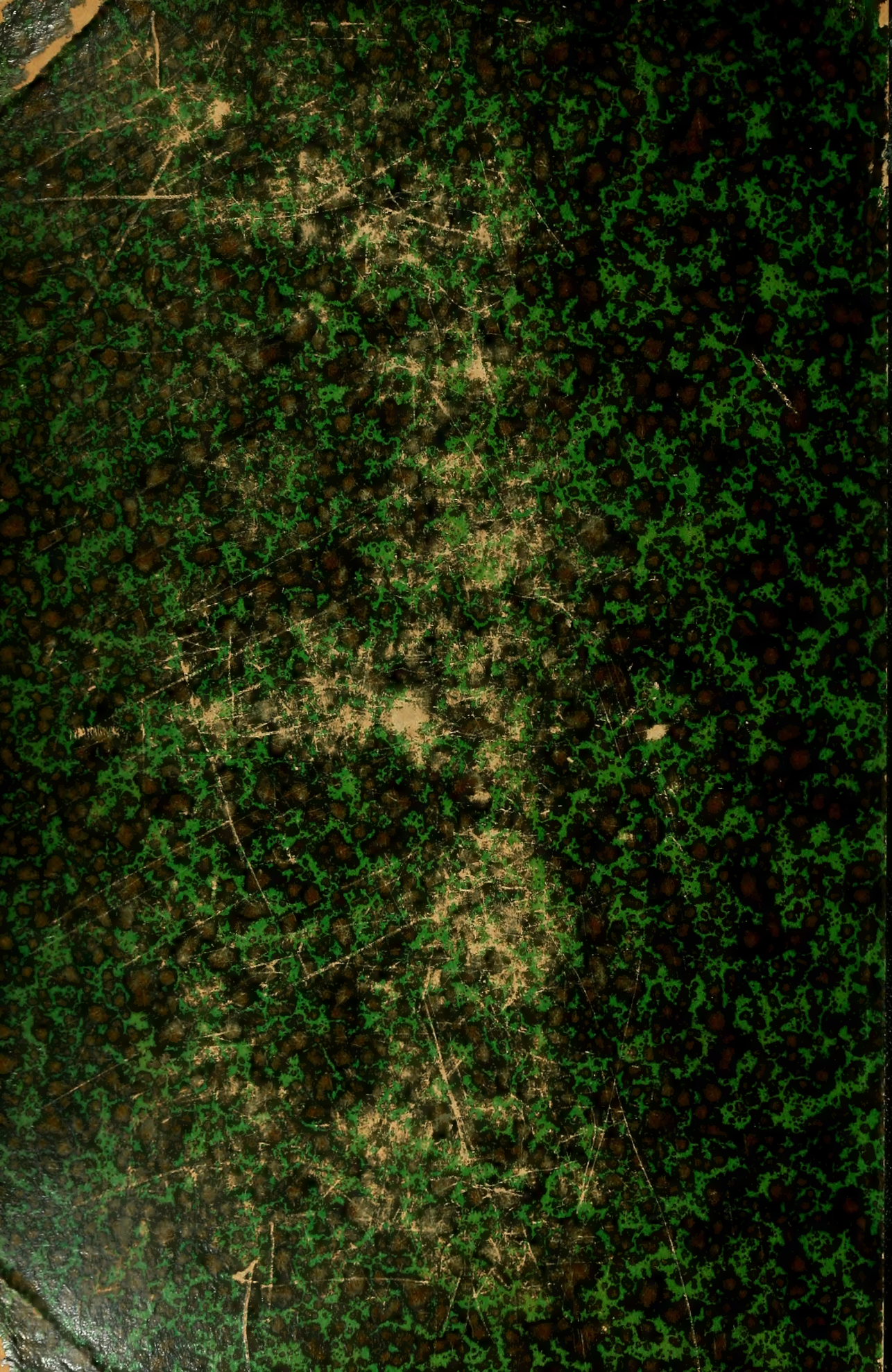
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